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# EUROPEAN EQUITY CARVE-OUTS – GOOD OR EVIL?



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Abstract
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## PURPOSE OF THE STUDY

The purpose of this study is to provide a comprehensive analysis of equity carve-outs conducted by European companies. Four different angles are discussed: market reaction to equity carve-out announcements, motivation behind carve-outs stated by firm managers and the business community, financial characteristics of firms conducting carve-outs, and operating performance of post-carve-out parent and subsidiary firms. As there are no previous equity carve-out studies including a pan-European dataset, this study sheds light on the reasons for European companies to conduct equity carve-outs, and contributes to the existing discussion about the sources of the wealth gain related to them.

## DATA

The equity carve-out sample used in this study is obtained from two sources: Security Data Company's (SDC) *International Mergers & Acquisitions* and *Global New Issues* databases, and *Mergers & Acquisitions'* yearly lists of 'Foreign company carve-outs'. The data consists of 94 European carve-outs during the period 1991-2005. A European carve-out is here classified as one with a European parent company.

## RESULTS

This study finds statistically significant abnormal returns for sample parent companies announcing equity carve-outs. The announcement-day excess return equals 1.61 %, and the announcement-period -5, +5 days excess return equals 2.31 %. The most commonly stated motives for equity carve-outs are refocusing and raising equity capital for debt repayment or investing purposes. Parent companies initiating equity carve-outs are more leveraged than industry peers before the carve-outs, but their operating performance does not differ from rivals.

This study also finds that carved-out subsidiaries' operating performance improves relative to industry peers following the carve-out, measured both by the scale and efficiency of operations. Parent companies' operating performance is worse that rivals' after the carve-out. Overall, the study finds evidence supporting the divestiture gains hypothesis of equity carve-outs.


## KEYWORDS

Divestment, equity carve-out, event-study, financial characteristic, operating performance.

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# EUROOPPALAISTEN YRITYSTEN TOTEUTTAMAT TYTÄRYRITYSTEN LISTAUTUMISANNIT

## TUTKIMUKSEN TARKOITUS

Tutkimuksen tarkoituksena on antaa kattava kuva eurooppalaisten yritysten toteuttamista tytäryhtiöiden listautumisanneista (equity carve-out). Aihetta tarkastellaan neljästä näkökulmasta: markkinoiden reaktio listautumisjulkistuksiin, yritysten ja analyytikoiden esiintuomat motiivit listautumisten toteuttamiselle, emoyritysten taloudellinen tila ennen listautumisantia sekä emo- ja tytäryritysten operatiivinen tuloksentekokyky listautumisannin jälkeen. Koska aihetta ei ole aikaisemmin tutkittu useita Euroopan maita kattavalla aineistolla, valaisee tutkimus motiiveja eurooppalaisten yritysten järjestämien tytäryritysten listautumisten taustalla, sekä osaltaan selvittää julkistuksiin liittyvien ylisuurien tuottojen syitä.

## AINEISTO

Tutkimuksessa käytetty aineisto on kerätty kahdesta lähteestä: Security Data Company:n (SDC) *International Mergers & Acquisitions*- ja *Global New Issues*- tietokannoista, sekä *Mergers & Acquisitions* – lehden vuosittain julkaisemista 'ulkomaalaisten yritysten toteuttamat tytäryritysten listautumisannit' – artikkeleista. Aineisto koostuu 94:stä tytäryritysten listautumisannista, jotka julkistettiin välillä 1991–2005.

## TULOKSET

Tutkimustulokset osoittavat tilastollisesti merkitseviä ylisuuria tuottoja eurooppalaisille yrityksille, jotka julkistavat suunnitelman tytäryrityksensä listautumisannista. Julkaisupäivän keskimääräinen ylisuuri tuotto on 1.61 %, ja julkaisuperiodin -5, +5 päivää keskimääräinen ylisuuri tuotto on 2.31 %. Yleisimmät motiivit listautumisantien toteuttamisen taustalla ovat keskittyminen ydinosaamiseen sekä pääoman saaminen joko velkojen takaisinmaksua tai investointien rahoittamista varten. Emoyritykset, jotka päättävät listata tytäryrityksensä, ovat velkaantuneempia kuin kilpailijansa, mutta niiden operatiivinen tuloksentekokyky ei eroa merkittävästi kilpailijoista.

Tutkimus osoittaa myös, että listattujen tytäryritysten operatiivinen tuloksentekokyky paranee listautumisen jälkeen, sekä toiminnan mittakaavalla että tehokkuudella mitaten. Sen sijaan emoyritysten tuloksentekokyky on huonompaa kuin kilpailijoiden listautumisen toteuttamisen jälkeen. Kaiken kaikkiaan, tutkimus löytää näyttöä tytäryritysten listautumisiin liittyvän 'divestiture gains' – hypoteesin puolesta.

## AVAINSANAT

Divestointi, tytäryrityksen listautumisanti, tapahtumatutkimus, taloudellinen tila, operatiivinen tuloksentekokyky.

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## 1. INTRODUCTION

Starting from the 1980s, companies both in the USA and in Europe have been moving toward a greater corporate focus. This is a reverse to strategies of diversification that were predominant in earlier decades. Comment and Jarrell (1995) document a steady rise in focus and specialization for American companies during the 1980s. In 1988, almost 56 % of exchange-listed firms had only one business segment, compared to 38 % in 1979. What is perhaps even more important, they show that greater focus is associated with shareholder wealth maximization. Comment and Jarrell find the best average stock market performance for firms that head toward an increase in focus, whereas the opposite is true for firms increasing diversification. Also Berger and Ofek (1995) have found that diversified US firms suffered from a value discount of approximately 13 % to 15 % during 1986-1991. In Europe, the trend in focus has not been documented as broadly. Boer, Brounen and Op't Veld (2005) study a specific sector, real estate, with a sample consisting of US, British, French, Dutch and Swedish listed property companies. They find that European companies exhibit higher levels of geographical concentration and lower levels of industrial focus than US companies, but there is a trend toward greater industrial focus in European companies as well. Boer et al. also find evidence of better stock market performance for more focused firms, and for firms shifting their strategy toward corporate specialization.

Firms can achieve greater focus with different types of transactions, including asset sell-offs, spin-offs and equity carve-outs. An asset sell-off is the sale of an asset to a corporate buyer, without public financial markets. In a sell-off, the seller gives up control of the asset in exchange for funds. A spin-off means the separation of a subsidiary from parent firm, in which the shares in the new entity are transferred to existing shareholders of the parent. A spin-off thus creates an independent, exchange-listed company, with no control left to the parent. In an equity carve-out, shares in a subsidiary are offered to the public. It can therefore be seen as a subsidiary IPO. Typically, the parent retains a controlling interest in the subsidiary. A new, exchange-listed company is created, but the parent still has some control over the new entity.

Among the first to study equity carve-outs were Schipper and Smith (1986). They compare equity carve-outs with seasoned offers of equity, SEOs, and find a positive abnormal return of 1.8 % for parents of carved-out subsidiaries compared to a negative abnormal return for

companies conducting SEOs. They state this difference could be due to a number of things, including separation of subsidiary growth opportunities from those of the parent, better financial information about the subsidiary as a result of exchange listing, and restructuring of management incentive contracts. Since Shipper and Smith, a number of studies have documented positive abnormal returns for firms conducting equity carve-outs, mainly with US data. These include Allen and McConnell (1998) with a three-day excess return of 2.12 %, Slovin, Sushka, and Ferraro (1995) with a two-day excess return of 1.23 %, and Vijh (2002) with a three-day excess return of 1.93 %. Some studies including European companies are that of Wagner's (2005), studying German carve-outs, with a three-day excess return of 1.72 %, and Elsas and Löffrer's (2003), with an announcement-day return of 1 % also with a German sample.

Although the positive abnormal returns associated with equity carve-outs are quite well documented, there is no consensus about the sources of this wealth gain. The two main competing explanations are 1) the divestiture gains hypothesis, based on Shipper and Smith's work, and 2) the asymmetric information hypothesis, originally developed by Nanda (1991). The divestiture gains hypothesis is a broad term for hypotheses all stemming from increased efficiency and transparency of operations, better quality of financial information and decreased agency costs as a result of separation of a subsidiary form the parent. The asymmetric information hypothesis, on the other hand, states that managers use equity carve-outs mainly as financing instruments. Whenever they consider a subsidiary's equity overvalued and the parent's equity undervalued, they are likely to issue equity in the subsidiary. Because the parent's assets are usually considerably larger than those of the subsidiary, the parent's share price rises with the announcement of an equity carve-out.

This paper studies a set of European equity carve-outs conducted over the period 1991 through 2005. A European carve-out is here classified as one with a European parent company. To my knowledge, there is no comprehensive study including pan-European companies, perhaps due to limited amount of data available. The purpose of this study therefore is to provide a broad analysis of European equity carve-outs; stock market reaction, motives for conducting a carve-out, common features of parent companies and effects of carve-outs on future performance of both parent and carved-out subsidiary.

The rest of the paper is organized as follows. Section 2 discusses existing studies about equity carve-outs and related issues, and their main findings. Section 3 presents my research hypotheses derived from previous literature. Section 4 describes the data and research methods used, and section 5 presents the results of empirical studies. Section 6 concludes.

## 2. LITERATURE REVIEW

In this section, I present existing literature related to equity carve-outs, spin-offs, asset sell-offs and the choice of divestiture method.

### 2.1. Research on Equity Carve-Outs

Papers studying equity carve-outs with US data are quite numerous. The basic discussion is centred on two competing hypotheses explaining the positive stock market reaction documented within equity carve-out announcements. The asymmetric information hypothesis sees carve-outs as financing instruments taking advantage of subsidiary overvaluation, whereas the divestiture gains hypothesis sees logical efficiency improvements behind the carve-out decision.

Schipper and Smith (1986) were the first to discover than equity carve-outs are the only form of equity financing arrangement associated with a positive stock market reaction. They study a set of 76 US equity carve-outs conducted between 1963 and 1983, and find that parent firm shareholders earn an excess return of almost two per cent at the announcement of a carve-out. This gain is similar to that of spin-off transactions documented earlier by e.g. Hite and Owers (1983) and Miles and Rosenfeld (1983). Schipper and Smith (1986) offer multiple explanations to this positive stock market reaction that are all related to the creation of a separately traded stock and restructuring of management and incentive contracts of the subsidiary. However, they do not analyze the gain in more detail. Later, more papers have developed this divestiture gains hypothesis further. Allen (1998) examines a special case of Thermo Electron Corporation, probably the best-known example of an advanced equity carve-out structure to date. Thermo Electron and its subsidiaries have taken public 12 wholly owned units in equity carve-outs, following a clear strategy, starting from 1983. Allen finds that both Thermo Electron and its carved-outs units have greatly outperformed industry and market benchmarks. In addition, the capital expenditures of carved-out subsidiaries increase significantly following the carve-out, and Allen concludes that those units had been underinvesting as a part of the parent company. Allen presents Thermo Electron as an example of a corporation with an innovative corporate governance system and is clearly an advocate of the divestiture gains hypothesis of equity carve-outs, at least in this specific case.

Hulburt, Miles and Woolridge (2002) also find evidence for the divestiture gains hypothesis. They study a sample of 185 equity carve-outs during the period 1981-1994, analysing the effect of carve-out announcement on parent rivals. The two main competing hypotheses would seem to cause a different reaction on parent rivals' stock prices: if an equity carve-out is a signal of undervalued parent firm equity (as implied by the asymmetric information hypothesis), and this is extended to the parent's entire industry, then rival firms' stock prices should react positively. But if an equity carve-out demonstrates efficiency gains for the parent, then rival firms' stock prices should react negatively. Hulburt et al. find evidence of the latter, with a mean return on rivals of –0.41 % surrounding the announcement date.

Slovin, Sushka and Ferraro (1995) examine equity carve-outs from a slightly different angle: stock price reaction of carved-out subsidiaries' rivals. They compare rivals' stock price reactions to announcements of equity carve-outs, spin-offs and asset sell-offs. Slovin et al. document a negative valuation effect of –1.0 % on rivals of carved-out subsidiaries, whereas the reaction is positive in the case of spin-offs and normal for sell-offs. They suggest that managers conduct equity carve-outs whenever they think outside investors will price the equity favourably relative to its true value. This evidence supports the model of asymmetric information originally developed by Nanda (1991). Nanda presents a theoretical model to explain when all equity firms will either forgo a positive NPV project, or finance it with a SEO or an equity carve-out. His conclusion is that whenever firms announce equity carve-outs, it is a negative signal about subsidiary equity (which is overvalued) and a positive signal about parent equity (which is undervalued). Because parent assets are usually greater than subsidiary assets, market reaction is positive.

More recently, Powers (2003) finds evidence of the asymmetric information hypothesis as well. He examines 181 equity carve-outs that occurred between 1981 and 1996 and presents three main findings: carved-out subsidiaries' operating performance peaks at the time of the carve-out but declines thereafter, parents sell a greater percentage of shares when subsequent performance is poor, and liquidity-constrained parents sell a greater percentage of shares in the subsidiary. Powers concludes that managers conduct equity carve-outs not to improve efficiency, but to sell overvalued equity.

Allen and McConnell (1998) propose a managerial discretion hypothesis of equity carve-outs. They study a sample of 188 equity carve-outs conducted in the US between 1978 and 1993.

They assume that managers value control over assets and are thus reluctant to sell off or carve out subsidiaries even if it would be in the best interest of shareholders. One of Allen and McConnell's pre-assumptions is that equity carve-outs can give rise to a gain to certain firms, but they do not investigate the sources of this gain and therefore provide no evidence either on the asymmetric information or the divestiture gains hypotheses. Instead, they concentrate on financial condition of pre-carve-out firms and find them to be more leveraged and less profitable than industry peers. Allen and McConnell see equity carve-outs as asset sales, to the public instead of a single buyer, and assume carve-outs are used only when the funds are needed for other purposes which are preferred by management. These other purposes usually refer to paying down debt or retaining the funds for investments. Allen and McConnell divide their sample of carve-outs according to the intended use of funds and observe that the difference in excess returns is substantial for the two subsamples. When the funds are used to repay creditors or pay a dividend to shareholders, the average excess return is more than 6 %, opposite to close to zero returns when the funds are retained within the firm. This implies that the market discounts the gains in carve-outs whenever management has discretion over the funds generated, due to agency costs of management.

Elsas and Löffrer (2003) adopt a view that resembles that of Allen and McConnell's (1998). They study 46 equity carve-outs conducted in Germany over the period 1984 through 2000, and find average announcement-day effect of 1 %, and 4 % for -5,+5 event window . Elsas and Löffrer state that the degree of control in pre-carve-out firm affects the magnitude of excess returns. The more the management in pre-carve-out firm is subject to control by any corporate governance institution, such as controlling shareholders, supervisory boards or banks, the lower should be the gain in value from change of control structure associated with equity carve-outs. Their empirical findings are consistent with this hypothesis: higher degree of pre-event ownership concentration leads to lower excess returns.

Some papers have studied the long-term performance of carve-out subsidiaries' stock in addition to short-term returns. Vijh (1999) uses a sample of 628 US equity carve-outs from 1981 to 1995 to test whether subsidiary stocks underperform market and industry benchmarks as it has been documented with IPOs and SEOs (see Ritter (1991) and Spiess and Affleck-Graves (1999) on IPO and SEO underperformance, respectively). His main finding is that carve-out subsidiaries do not underperform various benchmarks during the following three years. Three-year buy-and-hold excess returns for subsidiaries are insignificantly different

from zero. Vijh concludes that the superior performance of carved-out firms compared to IPOs and SEOs arises because subsidiary and parent firms can concentrate on fewer business segments after the carve-out, and because parents usually continue to hold a monitoring stake in subsidiaries.

Before Vijh, Klein, Rosenfeld and Beranek (1991) have examined the long-term performance of subsidiary stocks and the occurrence of second events after the carve-out. Second events are present in all but one case of their 40 equity carve-outs, and mean either re-acquisition of subsidiary stock by parent or disposal of stake altogether. Klein et al. find that the combined parent stock price reaction to both the initial announcement and the second event depends on the nature of the second event: in the case of re-acquisition, the combined return is statically insignificant, but in the case of sell-off, it is significantly positive. Subsidiary share price reaction is positive in both cases, but this gain is offset by negative abnormal returns in the period between the two events. This is in contrast to findings of Vijh (1999), whose results might be more reliable because he uses a considerably larger sample of carve-outs.

Long-term returns on subsidiary stock have also been studied in a McKinsey review by Anslinger, Carey, Fink and Gagnon (1997). They study a set of 119 equity carve-outs conducted by US companies during the period from 1985 to 1995. Anslinger et al. find that over a three-year period, the carved-out subsidiaries in their sample earned average compound annual returns of 20.3 percent, which is 9.6 % better than the Russell 2000 Index that was used as a benchmark. The returns were even better for subsidiaries in which stakes were sold repeatedly by parents: three years after the carve-out, the subsidiaries earned annual returns of 36.8 %, again beating benchmarks.

Overall, there exists a considerably large amount of equity carve-out studies with US data. Still, there is no unanimity about the sources of the well-documented wealth gain to shareholders. There are studies supporting both of the main two hypotheses. Studies with pan-European data do not exist (to my knowledge), and therefore it is of interest to see what kind of conclusions can be drawn from this study.

## 2.2. Research on Spin-Offs

Research on spin-offs is closely related to that on carve-outs, since both are ways to divest a subsidiary and can be considered as alternatives to each other. The main difference is that an equity carve-out generates cash to parent and/or subsidiary firms, whereas a spin-off means pro-rata distribution of shares to existing parent shareholders usually in the form of a tax-free dividend. Spin-offs have been in the interest of researchers before carve-outs and there exist numerous studies about them.

Hite and Owers (1983) examine stock price reactions around 123 spin-off announcements in the US during the period 1963-1981. They find positive abnormal returns of 3.3 % for (-1,0) event window and 7.0 % for (-50,0) event window. Hite and Owers study two hypotheses that might explain the gain: contracting efficiency, which is close to the divestiture gains hypothesis of equity carve-outs, and expropriation from senior claimholders. They find no evidence of the latter and conclude that spin-offs create more efficient contracts and comparative advantage for parent and subsidiary firms. Hite and Owers also study press announcements to explain in more detail the gain to shareholders which seems quite large. They find that firms that use spin-offs to facilitate mergers or specialize in operations earn larger excess returns than firms that use spin-offs as a response to regulatory or anti-trust intervention, when the excess returns are negative.

Simultaneously with Hite and Owers, Schipper and Smith (1983) study voluntary spin-off announcements also for the period 1963-1981. Their study includes 93 spin-offs which generate excess returns of 2.84 % for (-1,0) announcement-period. According to Schipper and Smith, this wealth increase does not come wholly at the expense of bondholders, but may arise from tax and regulatory advantages and/or from improved managerial efficiency.

Later, Aron (1991) develops a model which sees corporate spin-offs as a feature of managerial incentive contracts in a diversified firm. She argues that even a possibility of future spin-off improves the incentives of current division managers, and spin-offs can help a multi-segment firm to attract and retain key employees. Spin-off incentive policies can outperform traditional principal-agent contracts in diversified firms since after a spin-off, the stock value of a division is a much cleaner signal of managerial performance than when it belongs to the parent firm.

Daley, Mehrotra and Sivakumar (1997) test a prediction from corporate focus literature that cross-industry spin-offs create more value than own-industry spin-offs. A cross-industry spin-off is defined as one where parent and subsidiary firms belong to different 2-digit SIC codes. They find a mean announcement-period (-1,0) excess return of 3.4 % for their whole sample of 85 spin-offs. When the sample is divided into two, 65 cases of cross-industry spin-offs earn an excess return of 4.3 %, compared to 1.4 % for remaining 25 cases of own-industry spin-offs. Daley et al. conclude that spin-offs create value only when they increase corporate focus. They attribute this value increase mainly to improvements in parent firm operating performance. Daley et al. thus state that spin-offs are a means for companies to remove unrelated assets, and help managers to concentrate on core activities which they are best suited to manage. Their conclusions are partly in contrast to those of Aron (1991) who sees spin-offs as incentive tools especially for division managers.

Cusatis, Miles and Woolridge (1992) examine parent and subsidiary stock performance up to three years after the spin-off. Their study includes 146 US spin-offs over the 1965-1988 period. Cusatis et al. find superior long-term investment performance for both parent and spun-off subsidiaries, and their combinations, but only for firms which are associated with unusually high post-spin-off restructuring activity. Their spin-off-parent combinations earn a 2-year excess return of 24.2 % from six months before the distribution date. Cusatis. et al. conclude that spin-offs provide a low-cost method of transferring control of corporate assets to bidders who will create greater value.

Hypotheses about corporate spin-off are partly similar to those about equity carve-outs. Yet, there is no such a clear confrontation between the different hypotheses as with equity carve-outs. The confrontation between equity carve-out hypotheses arises from the cash-generating nature of the transaction that does not exist in the case of spin-offs. Therefore it may be considered a more complicated task to estimate reasons for carve-outs than for spin-offs.

### 2.3. Research on Sell-Offs

Research on sell-offs is also related to that on carve-outs, since the two are ways to divest a subsidiary and both methods (usually) generate cash to parent firms. However, sell-offs do

not lead to the creation of an independent publicly listed company, and therefore the nature of sell-off transactions is considerably different from equity carve-outs'.

Jain (1985) was among the first to study the effects of sell-off announcements on the sellers' and buyers' stock prices. He examines 1000 voluntary sell-off announcements in the US between 1976 and 1978 and finds a significant 5-day excess return of 0.70 % for firms announcing asset sales. Buyer of assets also exhibit abnormal performance, although in a lesser extent: on day -1, they earn an excess return of 0.35 % but for days -5 to -1 the returns are insignificantly different from zero. Jain also finds evidence of poor stock market performance for the selling companies before the sell-off announcement, since the announcement is preceded by a period of significant negative abnormal returns.

Later, John and Ofek (1995) study a set of 321 asset sales announced during the period 1986 to 1988 in the US. In addition to studying the market reaction to sell-off announcements, they also investigate the motives behind them. John and Ofek find an average three-day excess return of 1.5 % for firms announcing divestments of operating units by means of a trade sale. Their basic hypothesis is that firms conduct sell-offs in order to increase focus and hence to improve their operating performance. John and Ofek find that there is a significant improvement in the performance of divesting firms' remaining assets in the three years following the sale, but this is true only for firms increasing focus. They also find that increased focus is an important positive determinant of the selling firm's stock price reaction to the announcement of a sell-off.

Lang, Poulsen and Stulz (1995) develop a managerial discretion hypothesis about corporate sell-offs that is later extended to cover also equity carve-outs by Allen and McConnell (1998). According to Lang et al., management sells firm assets only when it is the cheapest source of funding available to pursue its own objectives, instead of selling assets because of efficiency improvements. They study a set of 93 US firms announcing voluntary sell-offs during the period 1984 through 1989, and find that a typical firm in their sample performs poorly and/or has high leverage before the sell-off. Also, share price reaction to sell-offs is positive only when the proceeds from the sale are paid out. Lang et al. call their hypothesis about the motivation of sell-offs the financing hypothesis of asset sales, which closely resembles the financing hypothesis of equity carve-outs introduced later in section 3.

More recently, Kaiser and Stouraitis (2001) study the effect of the motivation behind a sell-off and the use of proceeds from the sale on the value of 289 UK firms divesting assets during 1984–1994. With their sample of 590 sell-offs, Kaiser and Stouraitis find that sell-offs increase firm value when they are conducted to increase focus or to divest loss-making assets. When sell-offs are used to raise cash, to reshuffle operations without focusing, or when the motivation is not announced, the sell-offs do not lead to a value increase. With respect to the use of proceeds, returning the proceeds to shareholders or using them to decrease leverage are found to affect firm value positively, whereas using the proceeds for investment purposes had a negative impact on firm value during the 1980s, but disappeared in the 1990s. Kaiser and Stouraitis analyze news reports to identify reasons behind sell-offs decisions in the same manner that I do in this study.

In short, research on sell-off has found significant abnormal returns for firms conducting sell-offs, similarly as with equity carve-outs and spin-offs. Motives behind sell-offs and carve-outs might be partly the same due to the cash-generating nature of both transactions. Especially the financing and managerial discretion hypotheses of sell-offs have been extended to carve-outs later on.

### 2.4. Research on the Choice between Divestiture Methods

In addition to studying the different divestiture methods separately, some papers have also analysed the choice between divestiture methods made by companies. The purpose of these studies is to see if companies that choose a certain kind of divestment method differ from those choosing other forms of divestments.

Michaely and Shaw (1995) were the first to compare firms that choose to divest either through a spin-off or a carve-out. Their purpose is to analyse if divesting firms differ in any systematic manner conditional on the divestiture method chosen, and if so, are there differences in the type or quality of assets transferred that would explain that choice. Michaely and Shaw also study the operating performance of the divested subsidiaries and the parent companies after the divestiture. They use a sample of 91 divestments made in the US between 1981 and 1988 and find that riskier, more leveraged, and less profitable firms choose to divest through a spin-off. The spin-offs are also smaller and less profitable that their carved-out counterparts. Michaely and Shaw suggest that the divestment method choice is

affected by a firm's access to the capital market, since greater scrutiny and more detailed disclosure are required in equity carve-outs than in spin-offs. They do not find evidence of management leaving undervalued assets to the hands of existing shareholders, or a firm's cash needs being a major driver behind the divestment method choice. Operating efficiencies are not found to affect the choice either. Both the spun-off and carved-out subsidiaries underperform the market after the divestment, as well as the spin-off parents, but the carve-out parents' performance is in line with industrial rivals. These results contradict those of Hulburt, Miles and Woolridge (2002) who find operating performance improvements for equity carve-out parents and subsidiaries.

More recently, Frank and Harden (2001) extend the work of Michaely et al. (1995) on the choice between a spin-off and a carve-out. They examine the characteristics of 64 spin-offs and 76 carve-outs conducted during the period 1991-1997 in the US. Contrary to Michaely et al., Frank and Harden find that cash need is associated with the occurrence of carve-outs. As a firm's cash need increases, so does the likelihood of divestment through a carve-out. Additionally, also contrary to Michaely et al., the authors find no evidence of differences in the size, leverage or profitability of the parent firms. Frank et al. suggest that the markets' demand for the subsidiary plays a significant role in the choice of divestment method. They see carve-outs as an increasing function of the subsidiary industry's attractiveness and the profitability of the subsidiary. Frank et al. also find that the benefits of controlling a subsidiary in a related industry are more likely to lead to a carve-out than a spin-off when the parent and subsidiary are in related industries, and that the outcome of a tax ruling can also alter divestiture plans.

Khan and Mehta (1996) investigate the reasons behind a firm's choice to divest assets through either a sell-off or a spin-off. They study 280 sell-offs and 86 spin-offs for the period 1969-1987 with US data. Their results suggest that firms undertake divestitures because of low marginal return together with high operating and financial costs of the divested asset. According to Khan and Mehta, the form of divestiture is determined by the operating risk of the division to be divested. A division with low operating risk (low growth, stable earnings) tends to be divested through a sell-off, whereas a high-risk division (high growth prospects and uncertainty) tends to be divested through a spin-off.

There is one Master's Thesis written on the choice between spin-offs and carve-outs as well. Rejman (2004) examines market reactions to carve-out and spin-off announcements and analyses the motivation for such divestitures. He uses a global dataset with 93 equity carve-outs and 127 spin-offs over the period 1994-2003. Rejman finds statistically significant abnormal returns of 1.56 % for a (-5,+5) days interval for his carve-out sample, and 1.70 % abnormal returns for spin-offs over the same time interval. Rejman finds some evidence of financing and managerial incentives being motives for equity carve-outs. Cross-industry carve-outs, marginal tax rate, parent leverage, operating profit margin and return on invested capital affect the magnitude of excess returns. According to Rejman, his results support the findings of Michaely and Shaw (1995) who argue that bigger, less leveraged and more profitable firms choose carve-outs over spin-offs. In Rejman's sample, parent companies' operating profit margin, return on invested capital and asset turnover decline sharply after the carve-out. This indicates that the parent companies might have been in short of cash before the carve-out. As for spin-off motives, Rejman states that refocusing and better stand-alone value and opportunities are main reasons for companies to conduct spin-offs. In Europe, the market seems to prefer tax-free spin-offs in which capital gains taxes are paid only when shareholders sell their shares in the spun-off unit.

Rejman's study is interesting in a sense that it uses a global dataset and therefore includes also European companies. However, the majority (44 out of 93) of the equity carve-outs in his sample have been conducted by US companies. Rejman's Thesis includes 23 carve-outs by Western European companies. For this sub-sample, Rejman finds a 1.27 % abnormal return over the period of (-1,+1) days from the announcement. In addition to financing and managerial incentives types of reasons behind carve-outs, Rejman finds some evidence of generation of funds for investments being a reason for companies to conduct carve-outs in Europe.

Overall, there are some papers that have tried to decipher the reasons behind divestment method choice, but there is no unanimity among researchers about the underlying motives. Some argue that cash-generating divestments, such as equity carve-outs or asset sales, are preferred by cash-constrained firms, whereas others state that it is the firm's possibility to access the capital market that determines the divestment method.

## 3. HYPOTHESES

In this section, I present several hypotheses that will be tested later on related to motivation of equity carve-outs. Three different angles are discussed: hypotheses related to stock market reaction, hypotheses related to individual firm characteristics, and hypotheses related to firm performance after the carve-out.

### 3.1. Hypotheses Related to Stock Market Reaction to Equity Carve-Outs

In formulating the hypotheses related to stock market reaction to equity carve-outs, I follow the model of Vijh (2002). The two main hypotheses are the asymmetric information hypothesis and the divestiture gains hypothesis. Furthermore, the divestiture gains hypothesis is divided into several sub-hypotheses each somehow related to more efficient operations following the carve-out. The hypotheses presented here are competing; therefore all of them are not expected to be true.

- Asymmetric information: Managers exploit overvaluation of subsidiary assets. Carve-outs are conducted when management believes that subsidiary assets are overvalued and non-subsidiary assets are undervalued (or normally valued). Carve-outs are used as financing instruments. Because non-subsidiary assets are usually greater than subsidiary assets, stock market reaction to carve-out announcements is positive.

  *Hypothesis 1:* The ratio of non-subsidiary to subsidiary assets (gamma) affects the magnitude of excess returns. When gamma is $> 1$, excess returns are positive. When gamma is $< 1$, excess returns are negative. News reports should mention asymmetric information types of reasons.

Divestiture gains:

- Refocusing strategy: Carve-outs are a means of achieving greater focus. As with spin-offs and asset sales, improved focus leads to higher firm value, decreasing the diversification discount.

  *Hypothesis 2:* News reports and press releases should mention refocusing types of reasons. Parent firms will be more diversified than on average. Excess returns will be higher when parent and subsidiary firms are in different industries.

- Financing strategy: Raising equity capital is the primary reason for carve-outs. The capital is needed to pay down parent (and possibly subsidiary) debt.

  *Hypothesis 3:* News reports and press releases should mention reasons related to paying down debt or other financial obligations. Excess return will be higher in such cases. Parent firms may raise capital in SEOs later on, but capital expenditures will not be higher than average.
- Investment strategy: As with financing strategy, carve-outs are used to raise equity capital. The capital is needed to fund new/existing projects of the subsidiary or parent.

  *Hypothesis 4:* News reports and press releases should mention new/existing investments as reasons for carve-out. Excess returns will be higher in such cases. Subsidiaries may raise capital in SEOs later on, and their capital expenditures will be higher than matching firms.
- Complexity, undervaluation and pure play: The separation of parent and subsidiary makes it easier for investors to understand their value. It attracts investors who are only interested in the subsidiary's shares.

  *Hypothesis 5:* News reports and press releases should mention separation and better information as reasons for carve-out. Excess returns will be higher in such cases. Excess returns will also be higher if parent and subsidiary are in different industries.
- Managerial incentives: Carve-outs help companies to motivate subsidiary managers since stock-based compensation becomes easier. This increased motivation leads to better results and thus to higher firm value.

  *Hypothesis 6:* News reports and press releases should mention managerial incentives types of reasons. Excess returns will be higher in such cases. Subsidiary capital expenditures will be higher than matching firms.

### 3.2. Hypotheses Related to Company Characteristics

In addition to studying stock market reaction to equity carve-outs and announced motives related to them, it is of interest to study the characteristics of firms that conduct carve-outs. If some common features are found, this may help to understand the motives behind carve-outs other than stated by the companies. Allen and McConnell (1998) analyse operating performance of firms conducting equity carve-outs, and provide evidence of high leverage and poor operating performance before the carve-out. Similarly, Powers (2003) finds parent

firms to be more leveraged and underperform their matching samples in the fiscal year of the carve-out. Allen and McConnell present managerial discretion as a reason for carve-outs: managers prefer control over assets and conduct carve-outs only when necessary. They do not present evidence about the sources of wealth gain per se, but their results may be seen as supporting the financing hypothesis since excess returns are of greater magnitude when proceeds are used to pay down debt.

Two hypotheses related to the financial characteristics of firms conducting equity carve-outs can be formulated based on the discussion above:

- *Hypothesis 7:* Firms that conduct equity carve-outs are more leveraged than on average.

  Testable implications: Sample parent firms have higher leverage ratios (total debt to assets, total debt to common equity) and lower interest coverage ratios (fixed charges coverage, EBIT/interest expense) than benchmark firms.
- *Hypothesis 8:* Firms that conduct carve-outs exhibit poor operating performance before the carve-out.

  Testable implications: Sample parent firms have lower profit ratios (net margin, gross profit margin) than benchmark firms.

### 3.3. Hypotheses Related to post-Carve-Out Performance

If an equity carve-out produces more competitive parent and subsidiary firms, as suggested by the divestiture gains hypotheses, then their operating performance should improve after the carve-out. If equity carve-outs are merely financing instruments, then they should not affect the operating performance of either the parent or subsidiary. Two measures of improved performance are discussed here, as in Hulburt, Miles and Woolridge (2002): scale of operations and efficiency of operations. Two hypotheses can be formulated, following Hulburt et al.

- *Hypothesis 9:* Both parent and carved-out subsidiary firms have higher growth rates than rivals after the carve-out.

  Testable implications: Parent, and especially subsidiary firms have higher sales, income, total assets and capital expenditure growth rates than benchmark firms.

- *Hypothesis 10:* Both parent and carved-out subsidiary firms are more efficient and profitable than rivals after the carve-out.

  Testable implications: Parent and subsidiary firms have higher return on assets (ROA), return on equity (ROE) and return on invested capital (ROIC) growth rates than benchmark firms.

## 4. DATA DESCRIPTION AND RESEARCH METHODS

In this section, I present the data and research methods used in this study.

### 4.1. Data

The sample of equity carve-outs used in this study is obtained from two sources. First, I search Security Data Company's (SDC) *International Mergers & Acquisitions* and *Global New Issues* databases for equity carve-outs. From the International Mergers & Acquisitions database, equity carve-outs with a European parent company are chosen. In the Global New Issues database, equity carve-outs and spin-offs are both listed under the name of 'Spin-off types of transactions'. I thus check each case to see whether it is a spin-off or a carve-out. This analysis yields 81 equity carve-outs, one of which involves two subsidiaries carved-out by one parent. Second, I go through *Mergers & Acquisitions'* yearly lists of 'Foreign company carve-outs' for issues 1992 through 1999. These represent equity carve-outs by European companies conducted in the US. This yields 21 equity carve-outs. In total, I am able to identify 102 equity carve-outs. Out of these, 8 carve-outs are eliminated because no stock return data is available for them in Thomson One Banker or Datastream databases. My final sample size is therefore 94 carve-outs.

I also require a news report/press release/prospectus for each transaction to make sure it is really an equity carve-out and to verify the announcement date. The news reports are obtained from *LexisNexis* database using a keyword search. The news reports are also used in the empirical analysis of the motivation for carve-outs.

The daily stock returns of each parent firm for stock market reaction analysis are obtained from Thomson One Banker - *Analytics* database. Returns on indices used in this same analysis are obtained from Datastream *Global Equity Indices* database. Financial statement information for analyses of pre- and post-carve-out financial condition and operating performance are obtained from *Worldscope* database. Both the Datastream and Worldscope databases are accessible through Thomson One Banker.

Some descriptive statistics about the equity carve-outs sample are found from tables 1 to 3. Table 1 presents the distribution of total 94 carve-out announcements by year. Table 2 shows

average and median values for deals, fraction of shares sold by parent, and total deal value, again classified by year. Table 3 presents the distribution of carve-outs according to parent company nation.

**Table 1**

This table presents the yearly distribution of 94 sample equity carve-out announcements by European firms, 1991-2005.

| Year | Number of announcements |
|---|---|
| 1991 | 1 |
| 1992 | 3 |
| 1993 | 15 |
| 1994 | 5 |
| 1995 | 5 |
| 1996 | 5 |
| 1997 | 5 |
| 1998 | 7 |
| 1999 | 14 |
| 2000 | 14 |
| 2001 | 4 |
| 2002 | 4 |
| 2003 | 2 |
| 2004 | 7 |
| 2005 | 3 |
| **Total** | **94** |

It can be seen from table 1 than the number of equity carve-out has varied during the years. Equity carve-outs started to gain popularity in Europe in the beginning of the 1990s, and there seems to be a first peak in the number of carve-outs in 1993, when 15 carve-outs were announced. After that, the number declined, reaching another peak of 14 carve-outs per year during 1999-2000. That was a time of general stock market hype in Europe, which is reflected also in the number of equity carve-outs. Since then, there have been equity carve-outs by European companies every year, but no such surge has been seen.

**Table 2**

This table shows descriptive statistics for 94 equity carve-outs over 1991-2005. Statistics are the average dollar amount raised in the offering, the average percentage of shares sold at the offering and total deal value per year.

| Year | Average deal value ($ m) | Average fraction of shares sold at the offering | Total deal value ($ mil) |
|---|---|---|---|
| 1991 | 95,00 | 37,0 % | 95,00 |
| 1992 | 198,26 | 85,0 % | 594,78 |
| 1993 | 165,44 | 68,0 % | 2481,54 |
| 1994 | 247,69 | 67,1 % | 1238,45 |
| 1995 | 468,65 | 67,7 % | 2343,24 |
| 1996 | 449,11 | 62,7 % | 2245,55 |
| 1997 | 434,37 | 45,4 % | 2171,83 |
| 1998 | 401,51 | 43,2 % | 2810,60 |
| 1999 | 845,76 | 35,1 % | 11840,65 |
| 2000 | 684,30 | 30,6 % | 9580,20 |
| 2001 | 3067,06 | 67,5 % | 9201,19 |
| 2002 | 899,85 | 34,9 % | 3599,40 |
| 2003 | 1577,80 | 71,8 % | 3155,61 |
| 2004 | 528,95 | 56,7 % | 3702,67 |
| 2005 | 259,90 | 38,0 % | 519,80 |

Table 2 shows average deal value of equity carve-outs per year, average fraction of shares sold at the offering, and total deal value per year. It seems that over the years, parent companies have diminished the percentage in subsidiary offered to the public. During the first half of the 1990s it was more common to sell of all of the shares in the subsidiary, but later on it became more popular to leave the majority of the subsidiary to the control of the parent. Total deal value has increased and was greatest during the period 1999 through 2001, but has lowered since then. Average deal value has increased quite steadily, also reaching a peak at the turn of the century.

**Table 3**

This table presents the distribution of 94 sample equity carve-outs by parent nation, 1991-2005.

| Country | Number of announcements | Percentage of total |
|---|---|---|
| Belgium | 1 | 1.1 % |
| Denmark | 1 | 1.1 % |
| Finland | 4 | 4.3 % |
| France | 11 | 11.7 % |
| Germany | 18 | 19.1 % |
| Greece | 1 | 1.1 % |
| Italy | 6 | 6.4 % |
| Netherlands | 1 | 1.1 % |
| Norway | 1 | 1.1 % |
| Spain | 7 | 7.4 % |
| Sweden | 9 | 9.6 % |
| Switzerland | 10 | 10.6 % |
| United Kingdom | 24 | 25.5 % |
| **Total** | **94** | **100%** |

From table 3 it can be seen that a fourth of all equity carve-outs in this sample have been conducted by UK companies. German companies have been almost as active (19 %), followed by French and Swiss companies (12 % and 11 %, respectively). Also the number of Swedish companies conducting carve-outs is quite high (9 %). In Belgium, Denmark, Greece, Netherlands and Norway only one carve-out was announced during the years.

## 4.2. Research Methods

### *4.2.1. Market Reaction to Equity Carve-out Announcement*

To study the market reaction to announcement of equity carve-outs, I use the widely known event-study methodology. It is commonly used in equity carve-outs studies; see for example Allen and McConnell (1998). More specifically, to measure excess returns, I use the market adjusted model in which daily stock returns are compared to market returns. The market adjusted model has been shown to produce almost identical results as the market model (Brown & Warner 1985). The excess returns can be expressed as the following:

$$\varepsilon_{it} = R_{it} - E(R_{it}) \qquad (1)$$

where $\varepsilon_{it}$, $R_{it}$ and $E(R_{it})$ are excess, actual and expected return to security *i* on day *t*. The expected return may be expressed as the following:

$$E(R_{it}) = E(R_{mt}) \qquad (2)$$

where $R_{mt}$ is the market return on day *t*. Thus, the excess return to security *i* on day *t* is:

$$\varepsilon_{it} = R_{it} - E(R_{mt}) \quad (3)$$

Since the companies in this sample are from several different European nations, the ´market' here is used to describe each firms' home country's main stock index. The indices used in this study are the following:

Belgium: Bel 20
Denmark: OMX Copenhagen 20
Finland: OMX Helsinki Cap
France: CAC 40
Germany: DAX 30
Greece: DS Greece Market
Italy: Milan MIB 30
Netherlands: AEX Index
Norway: DS Norway Market
Spain: IBEX 35
Sweden: OMX Stockholm 30
Switzerland: Swiss Performance
United Kingdom: FTSE 100

*4.2.2. The Effect of Gamma*

To test the two general competing hypotheses about equity carve-outs, the asymmetric information and the divestiture gains hypothesis, I calculate gamma which is defined as the ratio of non-subsidiary assets to subsidiary assets in the pre-carve-out firm. In Nanda's (1991) theoretical model, the values of non-subsidiary and subsidiary assets are market values before the carve-out, which are not observable in reality. Therefore, I use the market values on the listing date, as in Vijh (2002). I calculate two measures of gamma: gamma 1, which is the ratio of non-subsidiary equity to subsidiary equity, and gamma 2, which is the ratio of non-subsidiary total assets to subsidiary total assets. I obtain the value of subsidiary equity in the pre-carve-out firm by subtracting the newly issued primary shares from all outstanding shares on the listing date and multiplying that by the share price. For gamma 2 calculation, I add the book value of other assets. To get the value of non-subsidiary equity in the pre-carve-out firm, I subtract the value of subsidiary equity from the parent company's equity value on the listing

date. Similarly, I subtract the subsidiary total assets from the parent total assets to get the value of pre-carve-out non-subsidiary total assets. I obtain the data on total shares issued, primary versus secondary shares issued, and total shares outstanding after the offering from SDC's *International Mergers & Acquisitions* and *Global New Issues* databases, Thomson One Baker's *Analytics* database, and finally from company prospectuses. The share price data is obtained from Thomson One Banker *Analytics* and *Datastream* databases.

*4.2.3. Analysis of News Reports*

To study the motivation of equity carve-outs stated by sample companies and analysts I search for relevant news reports and press releases to identify reasons behind them. I use a keyword search in LexisNexis to obtain these news reports. I am able to find a meaningful news report for 82 sample carve-outs. Some news reports mention only one reason and others many. The different reasons stated are classified according to hypotheses presented earlier in section 3, and their effects on the observed abnormal returns are also studied.

*4.2.4 Financial Characteristics of Parent and Subsidiary Companies*

To examine if there are common financial characteristics in firms that conduct carve-outs, I calculate several measures of leverage and operating performance of the sample pre-carve-out parent companies. The measures used are fixed charges coverage, debt/total assets, debt/common equity, EBIT/interest expense, net margin, and gross profit margin. These values are then compared to those of rival companies. Rival companies are defined as companies having the same SIC code as the parent. Finally, to test if equity carve-outs result in better operating performance of companies involved, I calculate different growth and profitability rates for both the parent and subsidiary companies after the carve-out. The measures used are sales, income, total assets and capital expenditure growth, and the change in return on assets (ROA), return on equity (ROE) and return on invested capital (ROIC). These are again compared to those of industry rival firms with same SIC codes as parent and subsidiary firms. The accounting variables and ratios, and peer group companies are obtained from Thomson One Banker's *Analytics* database.

*4.2.5. Regression Analysis*

To test further the significance of certain parent and subsidiary company features and carve-out motives on the magnitude of excess returns I conduct a regression analysis. The following cross-sectional statistical model is employed:

$$CAR_{ann\,i} = \alpha + \beta_1 GAMMA_i + \beta_2 INDUSTRY_i + \beta_3 INVESTING_i + \beta_4 FINANCING_i + \beta_5 LEVERAGE_i + \beta_6 ROA_i + \mu_i \quad (4)$$

where the dependent variable $CAR_{ann\ i}$ is the abnormal return on security i at the announcement of a carve-out, and the independent variables are:

GAMMA = The ratio of non-subsidiary equity to subsidiary equity (gamma 1)

INDUSTRY = A dummy taking the value 1 if the parent and subsidiary have a different 2-digit SIC-code, and 0 if not

INVESTING = A dummy taking the value 1 if investing-hypothesis types of reasons are mentioned in the news reports, and 0 otherwise

FINANCING = A dummy taking the value 1 if financing-hypothesis types of reasons are mentioned in the news reports, and 0 otherwise

LEVERAGE = The ratio of debt/total assets of the pre-carve-out parent firm

ROA = Return on assets of the parent firm in the year of the carve-out.

The explanatory variables have been chosen based on previous research. For example Vijh (2002) uses in his regression analysis the following explanatory variables: decile rank of subsidiary market value relative to parent market value, same-industry dummy, financing hypothesis dummy, investment hypothesis dummy, complexity, undervaluation and pure play dummy, primary vs. secondary shares dummy (taking the value 1 if both primary and secondary shares are issued, 0 otherwise) and spin-off dummy (taking the value 1 if the carve-out is followed by a spin-off, 0 otherwise). Allen and McConnell (1998) use the following independent variables: a dummy to indicate whether the funds are paid out (1) or not (0), pre-carve-out firm's long term debt ratio, pre-carve-out firm's ROA, a relative size measure, the fraction of shares retained by the parent after the carve-out, the fraction of funds raised that goes to the parent, second-event dummy and same-industry dummy.

## 5. EMPIRICAL RESULTS

In this section I present the results of empirical tests. First, I will report the basic results of the event-study analysis, second, the results related to the calculation of gamma, thereafter, the results of financial analysis of pre-carve-out parent firms and finally, the results of post-carve-out parent and subsidiary performance analysis.

### 5.1. Event-Study Analysis

The basic results of my event study analysis are presented in table 4. Total number of sample firms is 94. The announcement-day excess return equals 1.61 % (t-value 3.43), announcement period (-1,1) excess return equals 1.60 % (t-value 2.02), and announcement-period (-5,5) excess return equals 2.31 % (t-value 2.04). These results are in line with those obtained in previous equity carve-out studies. The magnitude of excess returns in US studies has usually been between 1 % and 2 %. In Europe, Wagner (2005) finds announcement period excess return of 1.74 % for German companies, and Elsas and Löffrer (2003) announcement-day return of 1 % also with a German sample. Rejman (2004) in his Master's Thesis finds a 1.27 % abnormal return for European equity carve-outs over a three-day interval.

**Table 4**

This table presents the mean cumulative abnormal returns (CARs) for the equity carve-out sample of 94 parent firms over 1991-2005. Anndate is the announcement date of the carve-out, anndate ± 1 is the CAR from one day before the announcement date to one day after the announcement date, and anndate ± 5 is the CAR from five days before the announcement to five days after the announcement. T-values are in the column next to the mean value.

| Number of firms | 94 | |
|---|---|---|
| **Cumulative Abnormal Returns** | **Average** | **t-value** |
| Anndate | 1.61%** | 3.43 |
| Anndate ± 3 | 1.60%* | 2.02 |
| Anndate ± 5 | 2.31%* | 2.04 |

* and ** denote significance at 5 % and 1 % level, respectively

All of the excess returns documented in table 4 are statistically significant. It seems that European companies conducting equity carve-outs achieve a wealth gain similar to that of US companies. Figure 1 shows cumulative excess returns for the period (-15,15) days for the 94 sample parent companies. It can be seen that the excess returns start to accumulate approximately 10 days before the announcement, which implies that the market may anticipate it. There is a clear jump just around the announcement though, as manifested by the 1.64 % announcement period (-1,1) days excess return.

**Figure 1**

This figure presents the cumulative abnormal returns from announcement date -15 days to announcement +15 days for the 94 sample parent firms.

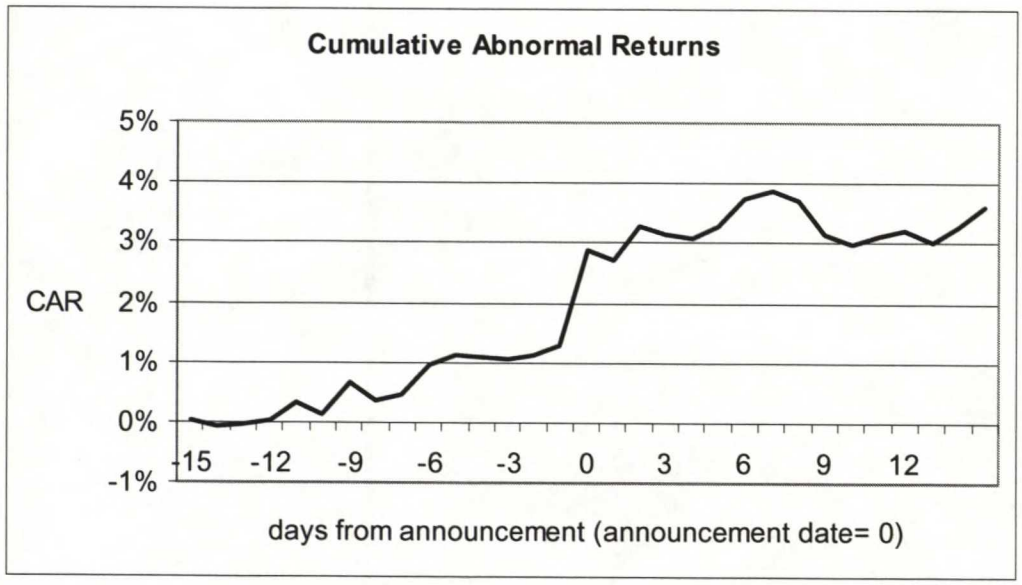

Table 5 presents the abnormal returns on a daily basis from -15 days to +15 days from the announcement. The announcement-day abnormal return of 1.61 % is preceded by a 0.16 % gain on the day -1, but followed by an equal -0.16 % loss on the day +1. The second biggest gain is in day +2, 0.56 %. Otherwise, there are no large positive or negative daily returns in addition to the announcement day.

**Table 5**

This table presents the abnormal return per day for a period of (-15, +15) days from the announcement for the 94 sample parent companies.

| Days from announcement | Abnormal return |
|---|---|
| -15 | -0.62 % |
| -14 | -0.08 % |
| -13 | 0.02 % |
| -12 | 0.06 % |
| -11 | 0.31 % |
| -10 | -0.20 % |
| -9 | 0.51 % |
| -8 | -0.29 % |
| -7 | 0.09 % |
| -6 | 0.52 % |
| -5 | 0.15 % |
| -4 | -0.03 % |
| -3 | -0.02 % |
| -2 | 0.06 % |
| -1 | 0.16 % |
| **0** | **1.61 %** |
| 1 | -0.16 % |
| 2 | 0.56 % |
| 3 | -0.14 % |
| 4 | -0.06 % |
| 5 | 0.20 % |
| 6 | 0.46 % |
| 7 | 0.13 % |
| 8 | -0.17 % |
| 9 | -0.55 % |
| 10 | -0.18 % |
| 11 | 0.14 % |
| 12 | 0.10 % |
| 13 | -0.20 % |
| 14 | 0.29 % |
| 15 | 0.32 % |

### 5.2. The Relationship between Gamma and Abnormal Returns

The purpose of calculating Nanda's (1991) gamma is to see whether companies with a greater percentage of non-subsidiary assets before the carve-out exhibit abnormal returns of larger magnitude within the announcement of the carve-out, compared to those with a greater percentage of subsidiary assets. In Nanda's view, equity carve-outs are a signal of undervalued subsidiary and overvalued parent equity. Therefore carve-outs are positive news for owners of companies with greater percentage of non-subsidiary assets. According to Nanda's model, when gamma > 1, the abnormal return should be positive, and when gamma < 1, the abnormal returns should be negative. I have calculated two measures of gammas for my sample companies, but as subsidiary equity/assets are greater that parent equity/assets in only a few cases, it is not meaningful to test the differences in excess returns between them. I will use gammas in regression analysis though, to see if the magnitude of gamma affects excess returns. Table 6 shows some descriptive statistics about the gammas I have calculated. As it can be seen from table 6, the variation range of gammas is quite large. If the extreme values are excluded, it seems as non-subsidiary assets are some 8 times bigger that subsidiary assets in a typical equity carve-out firm of this study. Gamma 1 is the ratio of non-subsidiary equity to subsidiary equity, and gamma 2 is the ratio of non-subsidiary assets to subsidiary assets.

**Table 6**

This table shows descriptive statistics about gammas: average, median, maximum and minimum values. Definitions of gamma 1 and gamma 2 are found below the table.

| | Gamma 1 | Gamma 2 |
|---|---|---|
| **Average** | 149.13 | 54.69 |
| **Median** | 8.51 | 8.58 |
| **Max** | 4267.98 | 1047.07 |
| **Min** | 0.20 | 0.01 |
| **No of observations** | 74 | 82 |

**Gamma 1** = Non-subsidiary equity/subsidiary equity
**Gamma 2** = Non-subsidiary assets/subsidiary assets

### 5.3. Analysis of Press Releases and News Reports

I have gone through relevant press releases and news reports related to equity carve-out announcements to see what kind of motives for carve-outs are stated by the companies or business community. I was able to find a relevant news excerpt for 82 cases out of my total sample of 94 carve-outs. Their average announcement-day excess return equals 1.46 (t-value 3.10), which is 0.16 % lower than for the whole sample. Table 7 summarises the results of this analysis. The total number of reasons stated is 117 since for some companies several reasons are presented. There is evidence on the asymmetric information hypothesis only for 10 firms. The vast majority of explanations belong to the divestiture gains category (94 firms). The percentages in table 7 do not add to 100 % due to multiple reasons for some sample companies.

**Table 7**

This table presents a summary of stated motives for public offerings of subsidiary stock for 82 parent companies announced between 1991 and 2005. The statements are taken from press releases and news reports.

| | Number of firms | % of sample firms |
|---|---|---|
| **Asymmetric information:** | | |
| Undervaluation of non-subsidiary | - | - |
| Overvaluation of subsidiary | 10 | 12.2 % |
| | | |
| **Divestiture gains:** | | |
| Refocusing | 20 | 24.4 % |
| Financing | 27 | 32.9 % |
| Investments | 30 | 36.6 % |
| Complexity | 14 | 17.1 % |
| Managerial incentives | 3 | 3.7 % |
| | | |
| Other | 13 | 15.9 % |

#### *5.3.1. Evidence on the Asymmetric Information Hypothesis*

I find evidence of asymmetric information only in 10 (12.2 %) of the 82 sample carve-outs with relevant news reports. There is no evidence of undervalued non-subsidiary assets; all news reports related to asymmetric information mention possible overvaluation of subsidiary equity. Two types of possible overvaluation occur: industry overvaluation (5 cases) and individual company overvaluation (5 cases). An example of the former is an analyst comment on Zurich Insurance Co.'s flotation of Zurich Reinsurance Centre Holdings Inc: "(Zurich Insurance) couldn't pick a better time to put an initial public offering of 8.55 million shares of

common stock on the market". Kirk Roeser, president of the reinsurance broker Gill and Roeser, continues: "Going into the market now is a very good move" because of the perception by investors that "with all the problems reinsurance companies suffered in the past year, it is now time to make money," he said.

The case of Dixons Group, floating its Internet portal Freeserve, proves an example of individual company overvaluation. A news report on *New Media Investor* comments Freeserve's IPO as the following: "...Given that this valuation will see Freeserve trading on hundreds of times its annual sales, the fact that AOL itself is valued at about 26 times its annual sales should give pause for thought...There seems very little doubt that the flotation will prove a success--at least for Dixons." Also an example of individual company overvaluation is Prudential PLC's flotation of Egg, an Internet bank. The following comments are from *Daily Deal.* "Bank analysts are puzzled about the high valuation expected for Britain's first Internet bank IPO, given the weakness of traditional bank shares." "I don't know how people are coming up with these £ 1.5 billion ($2.3 billion) to £ 4 billion figures, said Mark Phin, an analyst at Williams de Broe in London, referring to Egg's expected market capitalization."

I have calculated excess returns for the companies for which asymmetric information is mentioned. Table 8 presents these results, compared with excess returns for companies with no asymmetric information reasons mentioned. The numbers are averages, and t-values are in parentheses below. The average announcement-day excess return for asymmetric information companies is 1.08 % (t-value 1.68), announcement day $\pm$ 1 days excess return is 0.95 % (1.09), and announcement-day $\pm$ 5 days excess return is 2.99 % (1.84). The difference to the rest of the sample is -0.39 %, -0.08 % and 1.38 %, respectively. Thus, companies with asymmetric information reasons earn smaller excess returns over the short interval (-1,1) days than companies without asymmetric information. The numbers are not statistically significant, though, probably due to small sample size.

Overall, asymmetric information does not seem to be a big concern when it comes to European equity carve-outs, despite a few exceptions. When asymmetric information is present, excess returns are smaller than when it is not present for the short time interval of three days around the announcement.

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**Table 8**

This table presents average excess returns for companies with asymmetric information types of reasons mentioned in news reports (10 cases), compared with the rest of the sample (72 cases). T-values are in parentheses below.

| | Anndate | Anndate ± 1 | Anndate ± 5 |
|---|---|---|---|
| Firms for which asymmetric information is mentioned | 1.08 %<br>(1.68) | 0.95 %<br>(1.09) | 2.99 %<br>(1.84) |
| Others | 1.47 %**<br>(2.74) | 1.04 %<br>(1.34) | 1.61 %<br>(1.25) |
| Difference | -0.39 % | -0.08 % | 1.38 % |

* and ** denote significance at 5 % and 1 % level, respectively

*5.3.2 Evidence on the Refocusing Hypothesis*

Refocusing as a motive for carve-outs is mentioned for 20 sample companies (24.4 % of all). It is the 3rd common motive stated, behind investments and financing motives. Refocusing as a motive for carve-outs is in line with the documented tendency of companies getting back to their core business and divesting non-core activities. An example of this is Cattle's Holdings' flotation of its textile retailer subsidiary Rosebys, which is commented in *Eternal Examiner* as follows: "The proposed flotation of Rosebys also forms a part of Cattle's strategy to focus its activities in the financial services sector". Another example of refocusing is Adia SA's IPO of Personnel Group of America, its US subsidiary. The following comments are from *Business Wire*. "Adia decided to proceed with the offering in order to increase its focus in the United States on its global Adia brand. --- Adia has also determined that the shift away from supplemental staffing in hospitals towards home health care in the United States means that its health care operations are no longer a core business."

I have calculated excess returns for companies for which refocusing is mentioned as a reason for carve-out, compared with the rest of the sample. Table 9 summarizes these results. The numbers are averages, and t-values are in parentheses. Companies with refocusing mentioned earn an announcement-day excess return of 1.17 % (t-value 1.45), announcement-period (-

1,1) excess return of 0.68 % (0.58), and announcement-period (-5,5) excess return of 1.76 % (0.86). The excess returns for companies with no refocus mentioned are 1.50 % (t-value 2.61), 1.14 % (1.37) and 1.78 % (1.30), respectively. Companies with refocusing reasons mentioned thus seem to earn slightly lower excess returns than the rest of the sample. Maybe refocusing is such an evident part of equity carve-outs that stating it out loud does not cause any increase in value for parent companies; rather, the value increase in less than average. Most of the numbers are again not statistically significant again probably due to small sample size.

**Table 9**

This table presents average excess returns for companies with refocusing types of reasons mentioned in news reports (20 cases), compared with the rest of the sample (62 cases). T-values are in parentheses below.

| | Anndate | Anndate ± 1 | Anndate ± 5 |
|---|---|---|---|
| Firms for which refocusing is mentioned | 1.17 %<br>(1.45) | 0.68 %<br>(0.58) | 1.76 %<br>(0.86) |
| Others | 1.50 %*<br>(2.61) | 1.14 %<br>(1.37) | 1.78 %<br>(1.30) |
| Difference | -0.34 % | -0.46 % | -0.02 % |

* and ** denote significance at 5 % and 1 % level, respectively

*5.3.3. Evidence on the Financing Hypothesis*

Financing as a motive for carve-out occurs frequently. It is mentioned for 27 sample companies (32.9 %), and it is the second common reason behind only investment motives. Financing reasons include repayment of debt, building of working capital, financing of existent operations and general corporate purposes. Statements referring to debt repayment are the most common. An example of debt repayment by subsidiary is Pittencrieff Group's flotation of its mobile communications subsidiary Pittencrieff Communications (PCI), that *Eternal Examines* comments as follows: "PCI will repay 18.6 mln dlrs of inter-company indebtedness to the Pittencrieff Group from the net proceeds of the IPO." An example of debt repayment by parent company is Deutsche Post's flotation of Deutsche Postbank. According

to *Daily Deal,* "Deutsche Post, the former monopoly post office which is still 63% held by Germany, said it would use the funds to pay down its €4.75 billion in debt..."

Spectra-Physics AB's IPO of Spectra-Physics Lasers is an example of financing motives related to working capital and general purposes. An article in *Business Wire* comments that "Spectra-Physics Lasers anticipates using the proceeds of the offering for general corporate purposes, including working capital and capital expenditures." Escada's flotation of St John Knits proves an example of financing existing operations. *Financial Times* article says "The fashion company plans to use the proceeds of more than DM100m (Dollars 61.7m), to offset losses in the 1991-1992 year."

*5.3.4. Evidence on the Investing Hypothesis*

Funding for investments is the most commonly stated reason for equity carve-outs found in this study. It is mentioned for 30 firms (36.6 %). Investments by parent and/or subsidiary both occur. Fiat SpA's decision to float New Holland, its construction equipment subsidiary, gives an example of parent company investment. *Financial Times* comments "...the main reason for renewing the credit line and divesting part of New Holland is to raise money for further expansion in Italy and abroad" The case of Bure Equity AB, which floated its information technology subsidiary Dimension AB, proves an example of raising capital for subsidiary's investments. The following comments are from *Daily Deal*: "The Sweden-focused firm is listing to raise capital for growth into new geographical markets through organic expansion and acquisitions..."

Overall, there seems to be strong evidence in favour of the divestiture gains hypothesis, mainly the financing and investing sub-hypotheses. Evidence supporting the asymmetric information hypothesis is weak. Based on this news reports analysis, majority of firms seem to use equity carve-outs to raise equity capital for debt repayment (or other financial obligations) or for funding investments.

Since financing and investing hypothesis both see that the primary reason for equity carve-outs is raising equity capital, I group companies with those reasons mentioned together (48 companies) to calculate excess returns, compared with the rest (34 companies). The results of this analysis are presented in table 10. Firms for which financing or investing is mentioned as

a reason for carve-out earn an average excess return of 1.34 % on the announcement date (t-value 1.88), announcement-period (-1,1) excess return of 0.99 % (t-value 0.98), and announcement-period (-5,5) excess return of 0.94 % (t-value 0.60). The returns for the rest of the sample are 1.54 %, 1.08 % and 2.96 %, respectively. Most of the numbers are not statistically significant, but financing and investing companies seems to earn on average smaller excess returns than the rest of the companies. Thus, the most commonly stated reasons for equity carve-outs do not seem to be perceived more favourably by investors that other reasons.

**Table 10**

This table presents average excess returns for companies with financing or investing reasons mentioned in news reports (48 cases), compared with the rest of the sample (34 cases). T-values are in parentheses below.

| | Anndate | Anndate ± 1 | Anndate ± 5 |
|---|---|---|---|
| Firms for which financing or investing is mentioned | 1.34 %<br>(1.88) | 0.99 %<br>(0.98) | 0.94 %<br>(0.60) |
| Others | 1.54 %*<br>(2.70) | 1.08 %<br>(1.25) | 2.96 %<br>(1.77) |
| Difference | -0.21 % | -0.09 % | -2.03 % |

* and ** denote significance at 5 % and 1 % level, respectively

*5.3.5. Evidence on the Remaining Divestiture Gains Hypotheses*

The two remaining sub-hypotheses of divestiture gains: complexity, undervaluation and pure play, and managerial incentives, are mentioned in 17 cases (20.8 %) altogether. The majority of this relates to complexity (14 firms); managerial incentives are mentioned only in 3 cases. An example of complexity is Tacabalera's flotation of Logista, its distribution subsidiary, which is commented by an analyst in *AFX News* as the following: "Firstly, it gives greater transparency and more specific value to the company's distribution business, and, secondly -- it would access the capital markets through a business which is less risky than tobacco production, always subject to (government) regulations and price fluctuations."

One of the rare managerial incentives cases is Telefonica SA's IPO of Terra Networks. The following comment is from *AFX News:* "(Telefonica) has extended its special incentive payment scheme for management to its Terra Networks unit, the financial daily Cinco Dias reported. It cited the prospectus for the IPO of up to 23.6 pct of Terra Networks, book-building for which begins tomorrow."

### *5.3.6. Other Reasons for Equity Carve-Outs*

For 13 firms, other reasons than those presented in hypotheses 1-6 are mentioned. These include government regulations (usually related to privatisations), realization of investments, dividend increase and sector recovery from recession.

The results of this news reports analysis are in line with those of Vijh (2002), who finds strong evidence in favour of the divestiture gains hypothesis with US data. In his news reports analysis, he finds evidence of asymmetric information in only 8 % of the cases. Financing strategy is the most common reason in his study, before refocusing and investments. Compared to US firms, European firms according to this study seem to use equity carve-outs proportionally more to funding new investments than to refocus. This is consistent with the notion that trend in focus has been more broadly documented in the US: perhaps European companies are still more diversified their US counterparts.

## 5.4. Leverage and Operating Performance of pre-Carve-Out Firms

I have calculated different measures of leverage and operating performance for the sample parent firms and compared those to an industry peer group. The results of this analysis are presented in table 11. The statistics are fixed charges coverage, debt/total assets, debt/common equity, EBIT/interest expense, net margin, and gross profit margin. 'Peer group' is defined as a group of 1 to 5 companies with the same SIC code as the parent companies, and whose sales are within 5 (or 10, if not enough peer data available) companies above or below the parent. Peer group companies are obtained from Thomson One Banker. I have left out banks and insurance companies due to different balance sheet structure. For some companies, there was not enough peer group data available to calculate the different measures of leverage and operating performance. Therefore, the number of companies varies with each ratio.

**Table 11**

This table presents financial and operating characteristics of parent firms initiating equity carve-outs and industry peers over 1991-2005. The first row shows the mean and the second row the median value, and the third row shows the standard deviation. T-values for difference are in parentheses. Definitions of ratios are found below the table. Industry peers are a group of 1 to 5 companies with the same SIC-code than the sample companies. Peer companies are obtained from Thomson One Banker.

| | | Sample parent firms | Industry peers | Number of firms |
|---|---|---|---|---|
| **Fixed Charges Coverage** | Average | 10.18 | 9.17 | 72 |
| | Median | 3.04 | 5.30 | |
| | St. deviation | 36.99 | 16.57 | |
| T-value for difference | Average | (0.23) | | |
| | Median | (0.52) | | |
| **Debt/total assets, %** | Average | 30.23 | 27.35 | 72 |
| | Median | 33.06 | 24.37 | |
| | St. deviation | 15.70 | 14.29 | |
| T-value for difference | Average | (1.55) | | |
| | Median | (4.70)*** | | |
| **Debt/Common Equity, %** | Average | 148.68 | 108.81 | 71 |
| | Median | 107.33 | 71.54 | |
| | St. deviation | 178.61 | 112.73 | |
| T-value for difference | Average | (1.88)* | | |
| | Median | (1.69)* | | |
| **EBIT/Interest expense** | Average | 10.03 | 12.35 | 71 |
| | Median | 3.02 | 5.64 | |
| | St. deviation | 37.20 | 21.91 | |
| T-value for difference | Average | (0.53) | | |
| | Median | (0.59) | | |
| **Net Margin** | Average | 5.48 | 3.42 | 71 |
| | Median | 3.51 | 3.63 | |
| | St. deviation | 9.71 | 23.97 | |
| T-value for difference | Average | (1.79)* | | |
| | Median | (0.10) | | |
| **Gross Profit Margin** | Average | 25.70 | 28.28 | 69 |
| | Median | 26.36 | 26.44 | |
| | St. deviation | 19.87 | 19.30 | |
| T-value for difference | Average | (1.08) | | |
| | Median | (0.04) | | |

*, ** and *** denote significance at 10 %, 5 % and 1 % level, respectively

**Fixed Charges Coverage** = Earnings before Interest and Taxes / (Interest Expense on Debt + (Preferred Dividends (Cash)) / 1- (Tax Rate / 100))
**Debt/Total Assets** = (Short Term Debt & Current Portion of Long Term Debt + Long Term Debt) / Total Assets * 100
**Debt/Common Equity** = (Long Term Debt + Short Term Debt & Current Portion of Long Term Debt) / Common Equity * 100
**EBIT/Interest Expense** = Earnings before interest and taxes / total interest expense.
**Net Margin** = Net Income before Preferred Dividends / Net Sales or Revenues * 100
**Gross Profit Margin** = Gross Income / Net Sales or Revenues * 100

Table 11 shows that the pre-carve-out parent companies seem to be more leveraged than their industry peers. Parent firms' debt/total assets average ratio is 30.23 % (median 33.06 %), compared to the average of 27.35 % (median 24.37 %) for industry peers. The difference in the ratios between parent firms and industry rivals is thus 2.88 and 8.69 percentage points, respectively. Debt/common equity is also greater than with industry peers, average ratio being 148.68 % (median 107.33 %), compared to industry average of 108.81 % (median 71.54 %). The difference in the average ratio is 39.87 percentage points and in the median ratio 35.79 percentage points. Parent companies' fixed charges coverage average ratio is insignificantly higher than industry peers', 10.18 compared to 9.17. The median number is clearly lower though, 3.04 compared to 5.30, the difference being 2.26 (-42.6 %).

The median numbers are probably more reliable indicators with measures like this, since the accounting variables are most likely not normally distributed. The median values thus count out the effect of extreme numbers. It can be seen from table 11 that the difference in median debt/total assets ratio is statistically significant at the 1 % level, and that the average and median differences in debt/common equity ratio are both statistically significant at the 10 % level. Other differences are not statistically significant.

All this evidence suggests that parent companies might use equity carve-outs as a means to improve their balance sheet. The results thus provide evidence for hypothesis 7, which states that parent companies conducting equity carve-outs are more leveraged than on average. However, the possibility that the primary reason for equity carve-outs is for example refocusing or better stand-alone value for the carved-out subsidiary cannot be counted out, since the parent firms might choose an equity carve-out over a spin-off to 'kill two birds with one stone'. My results are in line with those obtained earlier by Allen and McConnell (1998): they find that parent firms in their sample have significantly lower interest coverage ratios and higher debt ratios that industry rivals before initiating equity carve-outs.

The results about parent companies' operating performance do not give a clear indication of either worse or better performance than rivals'. Parent companies' net margin average is higher than industry peers', 5.48 % vs. 3.42 %, but median values are approximately similar (3.51 % vs. 3.63 %). The differences thus are 2.06 and –0.12 percentage points, respectively. It should be noted that the standard deviation in this ratio is clearly higher for industry peers, and therefore the median number probably gives a better picture of their operating performance. Gross profit margin average is somewhat lower for parent firms than for industry peers, 25.70 % compared to 28.28 %, with a –2.58 percentage points difference. The median numbers are approximately equal, 26.36 % for parent firms vs. 26.44 % for industry peers, the difference being a negligible –0.08 percentage points. Only the average difference in net margin is statically significant, at the 10 % level.

All this evidence indicates that pre-carve-out parent firms' operating performance does not differ significantly from industry peers'. Although parent firms are more leveraged than rivals, they are able to maintain operating performance levels similar to rivals'. These results do not support hypothesis 8, which states that parent companies conducting equity carve-outs exhibit poor operating performance before the carve-out. These results differ from those obtained earlier by Allen and McConnell (1998), who find that pre-carve-out parent firms have lower profit margins on sales and lower rates of return on assets than industry peers. Thus, European companies conducting equity carve-outs seem to perform relatively better compared to their US counterparts.

### 5.5. Operating Performance of post-Carve-Out Parent Firms

The purpose of measuring the operating performance of both the parent and the subsidiary firms is to test whether equity carve-outs create more competitive parent and subsidiary, as implied by the divestiture gains hypothesis. First, the scale of operations is analysed and then the efficiency of operations.

Table 12 presents sales, income, total assets and capital expenditure growth over the period (0,1) years from the equity carve-out year for parent firms and their industry peers. Industry peers are a group of 1 to 5 companies with the same SIC code as parents, and whose sales are within 5 (or 10, if not enough peer data available) companies above or below the parent. They

are obtained from Thomson One Banker. For some companies, there is no peer group data available to calculate the different growth rates, and therefore the number of companies varies within the ratios.

**Table 12**

This table shows mean and median sales, income, total assets and capital expenditure growth rates over event years (0, +1) from the carve-out year for parent firms and industry peers. The first row shows the mean and the second row the median value. T-values for difference are in parentheses. Industry peers are a group of 1 to 5 companies with the same SIC-code than the sample companies. Peer companies are obtained from Thomson One Banker.

| | | Parent firms | Industry peers | Number of firms |
|---|---|---|---|---|
| **Sales** | Average | 27.09% | 21.67% | 79 |
| | Median | 8.38% | 14.09% | |
| T-value for difference | Average | (0.40) | | |
| | Median | (0.42) | | |
| **Income** | Average | -13.14% | 55.81% | 74 |
| | Median | -8.84% | 28.62% | |
| T-value for difference | Average | (1.13) | | |
| | Median | (0.62) | | |
| **Total assets** | Average | 43.28% | 19.10% | 77 |
| | Median | 3.68% | 11.42% | |
| T-value for difference | Average | (1.12) | | |
| | Median | (0.36) | | |
| **Capital expenditures** | Average | 16.92% | 40.48% | 65 |
| | Median | 3.28% | 16.61% | |
| T-value for difference | Average | (2.75)** | | |
| | Median | (1.56) | | |

* and ** denote significance at 5 % and 1 % level, respectively

Parent firms seem to have higher average growth rates than peers in sales and total assets; income and capital expenditures average growth is inferior to peers. The average growth rate of sales is 27.09 %, compared to 19.10 % for peers, and the average total assets growth for parents is 43.28 %, compared to 37.1 % for the peer group. As for income growth, the average

for parent firms is –13.40 %, vs. 55.81 % for rivals, and the capital expenditure average growth is 16.92 % vs. 40.48 % for rivals. Median values on the other hand are inferior to industry rivals in all the ratios; sales, total assets, income and capital expenditures growth. Median sales growth rate for parents is 8.38 % (vs. industry 14.09 %), income growth rate is –8.84 % (vs. 28.62 %), total assets growth rate is 3.68 % (vs. 11.42 %), and capital expenditure growth rate is 3.28 % (vs. 16.61 %). Again median growth rates might be more reliable for these kinds of measures for reasons discussed above.

These results suggest that equity carve-outs do not create more competitive parent firms at least when measured by the scale of operations; instead, parent firms' growth rates seem to be lower that their industry peers' following the carve-out. However, only the difference in average capital expenditure growth is statistically significant (at the 5 % level). Lack of statistical significance is likely to be due to the relative high standard deviations of all the growth rates. These results are partly in line with those obtained earlier by Hulburt, Miles and Woolridge (2003): they report negative size- and industry-matched sales, income, total assets and capital expenditure growth rates for their sample companies, but positive performance-adjusted growth rates. The results do not support hypothesis 9, which states that equity carve-outs result in higher growth rates for parent companies.

In addition to growth rates, I have calculated the change in different kinds of profitability measures for parent firms and their industry peers after the equity carve-out. Improvements in profitability may be considered as more important proofs of the divestiture gains hypothesis than accounting variable growth rates, since restructuring by equity carve-outs is supposed to be done to produce more efficient parent company operations, not merely to increase the scale of operations. Table 13 presents changes in operating performance measures, ROA, ROE and ROIC over the period (0,1) from the carve-out year. The peer group is the same as in table 11. Number of companies again varies depending on data availability.

**Table 13**

This table shows mean and median changes in operating performance measures, ROA, ROE and ROIC, over the event years (0, +1) for parent firms and industry peers. First row shows the mean and the second row the median value. T-values for differences are in parentheses. Definitions of ratios are found below the table. Industry peers are a group of 1 to 5 companies with the same SIC-code than the sample companies. Peer companies are obtained from Thomson One Banker.

| | | Parent firms | Industry peers | Number of firms |
|---|---|---|---|---|
| **Change in ROA** | Average | -17.66% | 11.55% | 78 |
| | Median | -1.94% | 1.15% | |
| T-value for difference | Average | (0.94) | | |
| | Median | (0.10) | | |
| **Change in ROE** | Average | -9.39% | -25.37% | 74 |
| | Median | -9.02% | 4.02% | |
| T-value for difference | Average | (1.05) | | |
| | Median | (0.15) | | |
| **Change in ROIC** | Average | -28.52% | -2.31% | 75 |
| | Median | -6.60% | -0.40% | |
| T-value for difference | Average | (1.04) | | |
| | Median | (0.23) | | |

*, ** and *** denote significance at 10 %, 5 % and 1 % level, respectively

**ROA** = Net Income before Preferred Dividends + ((Interest Expense on Debt-Interest Capitalized) * (1-Tax Rate))) / Last Year's Total Assets * 100
**ROE** = (Income before Preferred Dividends – Preferred Dividends) / Total Common Equity * 100
**ROIC** = (Net Income before Preferred Dividends + ((Interest Expense on Debt - Interest Capitalized) * (1-Tax Rate))) / (Last Year's Total Capital + Last Year's Short Term Debt & Current Portion of Long Term Debt) * 100

If measured by the average change, parent companies seem to underperform their industry peers in ROA and ROIC change; only ROE change is better. The average change in ROA for parents is -17.66 %, in ROE –9.39 % and in ROIC –28.52 %, versus 11.55 %, -25.47 % and –2.31 % for peers, respectively. If measured by the median number, parent firms now seem to underperform their industry peers in all the operating performance measures. Median value for ROA change is –1.94 % for parents, compared to 1.15 % for peers, for ROE change –9.02 % (vs. 4.02 %), and for ROIC change 6.60 % (vs. -0.40 %). All this evidence implies that

equity carve-outs do not increase parent firm profitability relative to industry peers. Consequently, the results do not support hypothesis 10 that assumes operating performance improvements for parent companies as a result of equity carve-out. However, none of the differences in average and median values are statistically significant, again most likely due to the relative high standard deviations of the measures. Despite the lack of statistical significance, the results can be considered as giving some guidance about parent firms' post-carve-out operating performance.

These results contradict the findings of Slovin, Sushka and Ferraro (1995), who find negative abnormal returns for US parent firm rivals at the announcement of an equity carve-out. If an equity carve-out leads to a more efficient and profitable parent firm, rivals' stock price reaction should be negative, as it was in the case of Slovin et al. It might be an interesting research topic to study the effect of European equity carve-outs announcements on the parent firm rivals' stock price, since in light of this evidence the effect should rather be positive or neutral instead of negative. My results are neither in line with Hulburt, Miles and Woolridge (2003), who find profitability improvements for parent companies conducting equity carve-outs with their US sample.

The analysis of post-carve-out parent firm performance altogether does not provide evidence in favour of the divestiture gains hypothesis; rather, it more or less supports the asymmetric information hypothesis. Parent firms seem to be less profitable than peers following the equity carve-out, and their scale of operations does not seem to increase. However, to make any reliable conclusions about the reasons of equity carve-outs, subsidiary firms' operating performance must also be studied. If asymmetric information is present, the performance of subsidiaries should worsen after the equity carve-out since the management is assumed to sell overvalued subsidiary equity in the carve-out. Next, the operating performance of post-carve-out subsidiary firms is analysed to shed more light on the effects of carve-outs to both of the involved companies.

### 5.6. Operating Performance of post-Carve-Out Subsidiary Firms

As with parent firms, the scale of operations and the efficiency of operations are both analysed within the context of equity carve-out subsidiary firms. The measures and ratios used are the same as with parent firms. Table 14 presents changes in sales, income, total assets and capital expenditure for subsidiary firms and their industry peers over the event years (0,+1), or if data not available, over the event years (+1,+2) from the carve-out. The peer group is defined as a group of 1 to 5 companies with the same SIC code as subsidiaries, and whose sales are within 5 (or 10, if not enough peer data available) companies above or below the subsidiary.

**Table 14**

This table shows mean and median sales, income, total assets and capital expenditure growth rates over event years (0, +1), or if not available over (+1,+2) from the carve-out year for subsidiary firms and industry peers. The first row shows the mean and the second row the median value. T-values for differences are in parentheses. Industry peers are a group of 1 to 5 companies with the same SIC-code than the sample companies. Peer companies are obtained from Thomson One Banker.

| | | Subsidiary firms | Industry peers | Number of firms |
|---|---|---|---|---|
| **Sales** | Average | 50.20% | 25.85% | 75 |
| | Median | 15.70% | 11.06% | |
| T-value for difference | Average | (1.62) | | |
| | Median | (0.31) | | |
| **Income** | Average | 57.58% | 88.10% | 60 |
| | Median | 27.25% | 20.43% | |
| T-value for difference | Average | (1.07) | | |
| | Median | (0.24) | | |
| **Total assets** | Average | 23.25% | 37.90% | 70 |
| | Median | 9.57% | 7.45% | |
| T-value for difference | Average | (2.38)** | | |
| | Median | (0.34) | | |
| **Capital expenditures** | Average | 88.53% | 176.49% | 64 |
| | Median | 28.11% | 40.65% | |
| T-value for difference | Average | (4.43)*** | | |
| | Median | (0.63) | | |

*, ** and *** denote significance at 10 %, 5 % and 1 % level, respectively

It can be seen from table 14 that the subsidiary firms have higher average sales growth rate than industry peers, but income, total assets and capital expenditure average growth rates are lower. The average sales growth for subsidiaries is 50.20 %, vs. 28.85 % for peers. The average income growth is 57.58 %, vs. 88.10 %, the average total assets growth is 23.25 %, vs. 37.90 %, and the average capital expenditures growth rate is 88.53 %, vs. 176.49 % for rivals. However, if measured by median growth, the subsidiaries outperform their industry peers in all but one of the measures. Median sales, income and total assets growth rates are superior to peers; only capital expenditures growth is inferior. As discussed earlier with parent firms, median values are probably more reliable with measures like this. The median sales growth for subsidiaries is 15.70 %, vs. 11.06 % for industry peers, and the median income growth is 27.25 %, vs. 20.43 %. The median total assets growth is 9.57 %, vs. 7.45 %, and finally, the median capital expenditures growth is 28.11 %, vs. 40.65 %. The average differences in total assets and capital expenditure growth are statistically significant at the 5 % and 1 % level, respectively. Other differences are not statistically significant.

Based on this analysis, equity carve-outs seem to produce more competitive subsidiary firms, at least when measured by the scale of operations. The subsidiaries outperform their industry peers in median sales, income and total assets growth. Anyhow, it seems that subsidiary firms' investments (as measured by capital expenditure growth) are inferior to peers, at least immediately following the carve-out. It could be that the subsidiaries concentrate on improving their existing operations before expanding. This could be an interesting future research topic; to analyse the operating performance of European equity carve-out subsidiary firms with a longer time horizon as it has been done with US companies by i.e. Powers (2003). These results support hypothesis 8, which predicts higher growth rates for subsidiary companies as a result of an equity carve-out, although without statistical significance.

Next, the change in the efficiency of operations following the equity carve-out is analysed. Table 15 presents changes in operating performance measures, ROA, ROE and ROIC, for subsidiary firms and their industry peers over the years (0,+1), or if data not available over (+1,+2) from the carve-out year. The peer group is the same as table 14.

**Table 15**

This table shows mean and median changes in operating performance over the event years (0, +1), or if data not available for (+1,+2) from the carve-out year for subsidiary firms and industry peers. First row shows the mean and the second row the median value. T-values for differences are in parentheses. Definitions of ratios are found below the table. Industry peers are a group of 1 to 5 companies with the same SIC-code than the sample companies. Peer companies are obtained from Thomson One Banker.

| | | Subsidiary firms | Industry peers | Number of firms |
|---|---|---|---|---|
| **Change in ROA** | Average | 0.17% | -186.49% | 67 |
| | Median | 1.57% | -0.66% | |
| T-value for difference | Average | (3.94)*** | | |
| | Median | (0.05) | | |
| **Change in ROE** | Average | -310.76% | -73.88% | 67 |
| | Median | -0.21% | -3.34% | |
| T-value for difference | Average | (1.22) | | |
| | Median | (0.02) | | |
| **Change in ROIC** | Average | 33.48% | -80.36% | 61 |
| | Median | -0.84% | -5.68% | |
| T-value for difference | Average | (2.73)*** | | |
| | Median | (0.12) | | |

*, ** and *** denote significance at 10 %, 5 % and 1 % level, respectively

**ROA** = Net Income before Preferred Dividends + ((Interest Expense on Debt-Interest Capitalized) * (1-Tax Rate))) / Last Year's Total Assets * 100
**ROE** = (Income before Preferred Dividends – Preferred Dividends) / Total Common Equity * 100
**ROIC** = (Net Income before Preferred Dividends + ((Interest Expense on Debt - Interest Capitalized) * (1-Tax Rate))) / (Last Year's Total Capital + Last Year's Short Term Debt & Current Portion of Long Term Debt) * 100

Table 15 shows that the subsidiary firms have higher average growth rates in ROA and ROIC after the carve-out; only ROE change is inferior to peers. The average change in ROA is 0.17 % for subsidiaries, compared to –186.49 % for peers, and the average change in ROIC is 33.48 %, vs. –80.36 % for peers. The average change in ROE is –310.76 %, vs. –73.88. Such large changes are most likely caused by some extreme values in the sample, and therefore the median values are probably more reliable. When measured by the median change, subsidiary firms seem to outperform their peers in all the ratios used. The median change in ROA for

subsidiaries is 1.57 %, vs. –0.66 % for peers, the median change in ROE is –0.21 %, vs. -3.34 % and the median change in ROIC is –0.84 %, vs. –5.68 %. Thus, these results provide support for hypothesis 9, which assumes operating performance improvements for carved-out subsidiary companies. Average differences in ROA and ROIC change are both statistically significant at 1 % level, but other differences lack statistical significance.

These results altogether suggest that equity carve-out do produce more competitive subsidiary companies, measured both by the scale of operations and the efficiency of operations. The results support the divestiture gains hypothesis, especially the refocusing and the complexity, undervaluation and pure play sub-hypotheses. The results are in contrast to the asymmetric information hypothesis that predicts no efficiency improvements as a result of an equity carve-out. Earlier, Hulburt, Miles and Woolridge (2003) have obtained similar results for their sample subsidiary firms: both scale and efficiency of operations improved following the equity carve-out.

### 5.7. Regression Analysis

I conclude my analysis about equity carve-out motives and effects by conducting a regression analysis to further test the effects of certain parent and subsidiary company features on the magnitude of the observed abnormal returns. For some companies, there was no data available for all the explanatory variables and therefore they had to be excluded from the regression. The regression sample size is 80. The results of the regression are presented in table 16. Table 17 presents the correlation between the explanatory variables.

**Table 16**

This table presents the results of my regression analysis. The dependent variable is announcement-day abnormal return. Definitions of the explanatory variables are found below the table. Sample size is 80 parent companies.

| | Coefficients | Standard Error | t Stat | P-value |
|---|---|---|---|---|
| **Intercept** | 0,0142 | 0,015 | 0,96 | 0,34 |
| **Gamma 1** | 0,0000 | 0,000 | -1,37 | 0,18 |
| **Different-industry dummy** | 0,0141 | 0,011 | 1,29 | 0,20 |
| **Financing dummy** | -0,0137 | 0,012 | -1,18 | 0,24 |
| **Investing dummy** | -0,0102 | 0,011 | -0,93 | 0,36 |
| **Debt/Total Assets** | 0,0003 | 0,000 | 0,98 | 0,33 |
| **ROA** | -0,0007 | 0,000 | -1,49 | 0,14 |

**Gamma** = The ratio of non-subsidiary equity to subsidiary equity (gamma 1)
**Industry** = A dummy taking the value 1 if the parent and subsidiary have a different 2-digit SIC-code, and 0 if not
**Investing** = A dummy taking the value 1 if investing-hypothesis types of reasons are mentioned in the news reports
**Financing** = A dummy taking the value 1 if financing-hypothesis types of reasons are mentioned in the news reports
**Leverage** = The ratio of debt/total assets of the pre-carve-out parent firm
**ROA** = Return on assets of the parent firm in the year if the carve-out.

**Table 17**

This table presents the correlation between the different explanatory variables used in the regression analysis.

| | Gamma 1 | Different-industry | Financing | Investing | Debt/Total Assets | ROA |
|---|---|---|---|---|---|---|
| Gamma 1 | 1 | | | | | |
| Different-industry | 0,08 | 1,00 | | | | |
| Financing | 0,11 | 0,08 | 1,00 | | | |
| Investing | 0,01 | -0,01 | -0,04 | 1,00 | | |
| Debt/Total Assets | -0,04 | -0,11 | 0,03 | -0,02 | 1,00 | |
| ROA | -0,02 | -0,06 | -0,07 | 0,10 | -0,14 | 1,00 |

The regression results produce the following equation:

$$CAR_{ann\ i} = 0.0142 + 0.0GAMMA_i + 0.0141INDUSTRY_i - 0.0102INVESTING_i - 0.0137FINANCING_i + 0.0003LEVERAGE_i - 0.0007ROA_i + \mu_i \quad (5)$$

It can be seen from the regression results that the different-industry dummy has the greatest effect on the magnitude of abnormal returns. The different-industry coefficient is positive with a value of 0.0141. The different-industry effect has been detected in previous studies as well: Vijh (2002) finds a statistically significant negative coefficient for his same-industry

dummy and similarly, Allen and McConnell find a negative although not statistically significant coefficient for their same-industry dummy (in both Vijh and Allen et al. the dummy has a value of 1 if the companies have the same SIC code and 0 otherwise). Also Rejman (2004) in his Master's Thesis finds that cross-industry carve-outs affect the magnitude of excess returns positively.

The second largest effect seems to be caused by the financing dummy. Its coefficient is negative with a value of -0.0137. The investing dummy seems to have the third largest effect, with also a negative coefficient of -0.0102. These findings contradict those of Vijh (2002) and Allen and McConnell (1998). Vijh finds that financing and investing types of reasons behind carve-outs affect the abnormal returns positively (although only the investing coefficient is statistically significant). Allen and McConnell find a positive, statistically significant coefficient for their use of proceeds dummy (1 if funds are paid out, 0 otherwise). Their use of proceeds -dummy is not exactly the same as my investing and financing dummies, but anyhow its coefficient does give some indication of the market reaction. However, Rejman (2004) finds that financing as a motive for carve-outs has a negative and statistically significant impact on the excess returns, with a global equity carve-out dataset.

The other coefficients are economically less significant, and what is notable, the coefficient of gamma is practically zero. This is in contrast to the asymmetric information hypothesis that predicts increasing abnormal returns as the value of gamma increases, which should be implied by a positive gamma coefficient. These results suggest that the relative size of parent and subsidiary companies does not affect the abnormal returns related to the announcement of an equity carve-out. Previous research by Vijh (2002) and Allen and McConnell (1998) has found positive statistically significant coefficients for relative size measures opposite to gamma (i.e. ratio of subsidiary assets to non-subsidiary assets), which means that the abnormal returns in their samples decrease with as gamma increases. This kind of behaviour is not detected in my regression analysis, since the relative size of parent and subsidiary companies does not seem to affect the magnitude of abnormal return at all.

Also the leverage and ROA coefficients are insignificant in size; 0.0003 and -0.0007, respectively. Thus the financial condition and operating performance of the parent firm do not seem to affect the magnitude of the observed abnormal returns. Allen and McConnell (1998)

find a negative but statistically insignificant coefficient for their leverage measure, and a positive but again statistically insignificant return on assets coefficient.

It should be noted that none of the regression coefficients are statistically significant and therefore no reliable scientific conclusions can be drawn from the analysis. T-values of the different-industry, financing and investing dummies are 1.29, -1.18 and –0.93, respectively. Also, $R_2$ is only 0.114 and the F-statistic 1.565, so the model does not seem to detect all the variables affecting the magnitude of excess returns. From table 17 it can be seen that there is no high correlation between the explanatory variables, so the model at least does not seem to suffer from multicollinearity.

The regression results, although not statistically significant, do not provide evidence in support of the asymmetric information hypothesis. Rather, the positive effect of the different-industry dummy supports the refocusing sub-hypothesis of the divestiture gains hypothesis. The negative signs of the financing and investing coefficients on the other hand are against the financing and investing sub-hypotheses' predictions of a positive effect of paying down debt or funding new investments on the abnormal returns related to equity carve-out announcements. Perhaps the market reacts differently to European equity carve-out announcements that to US announcements; carve-outs that are used in purpose of raising equity capital are not seen as favourable as those conducted mainly to increase focus. However, this is just speculation and overall, the regression results are mixed and lack statistical significance.

## 6. SUMMARY AND CONCLUSIONS

The purpose of this study is to provide a comprehensive analysis of equity carve-outs conducted by European companies, using a set of 94 carve-outs announced between 1991 and 2005. Four different angles are discussed: market reaction to equity carve-out announcements, motivation behind carve-outs stated by firm managers and the business community, financial characteristics of firms conducting carve-outs, and operating performance of post-carve-out parent and subsidiary firms. As there are no previous equity carve-out studies including a pan-European dataset, this study sheds light on the reasons for European companies to conduct equity carve-outs, and contributes to the existing discussion about the sources of wealth gain related to them.

Equity carve-outs started to gain popularity in Europe in the beginning of the 1990s. In US, they have been used as a divestiture method a considerably larger period, and consequently there are several studies about equity carve-outs with US data. Equity carve-outs are the only form of equity financing associated with a positive stock market reaction, in contrast to seasoned equity offerings (for SEO announcement stock market effect, see for example Masulis and Konwar (1998)). That makes them an interesting study topic. There are two competing hypotheses about the sources of the well-documented wealth gain: the asymmetric information hypothesis and the divestiture gains hypothesis. The asymmetric information hypothesis sees equity carve-outs as financing instruments, selling overvalued subsidiary equity, whereas the divestiture gains hypothesis states that carve-outs result in efficiency improvements in the companies involved.

I find statistically significant abnormal returns for my sample parent companies announcing equity carve-outs. The announcement-day excess return equals 1.61 %, the announcement-period -1, +1 days excess return equals 1.60 %, and the announcement-period -5, +5 days excess return equals 2.31 %. This is in line with previous US studies, and it thus seems that European companies announcing equity carve-outs experience wealth gains similar to their US counterparts. The abnormal returns start to accumulate approximately ten days before the announcement, which implies that the market may anticipate it.

I analyse the motives for companies to conduct equity carve-outs by studying news reports and press releases related to them. I was able to find a meaningful news report for 82 of my

sample carve-outs through a keyword search in *LexisNexis* database. I group the different reasons mentioned into two board hypotheses: the asymmetric information and the divestiture gain hypotheses. Moreover, the divestitures gain hypothesis is divided into several sub-hypotheses that are all related to more efficient operations resulting from a carve-out. The sub-hypotheses are: refocusing (carve-outs are a means of achieving greater focus), financing (carve-outs are conducted to raise equity capital to pay down debt), investing (carve-outs are conducted to raise equity capital for investments), complexity, undervaluation and pure play (carve-outs create better stand-alone value for the subsidiary), and managerial incentives (carve-outs are conducted to motivate subsidiary managers through stock-based compensation).

I find little evidence supporting the asymmetric information hypothesis. Overvalued subsidiary equity is mentioned only in 10 cases, or 12.2 % of the total sample. Investing, financing and refocusing types of reasons dominate the discussion; they are mentioned 77 times altogether. Investment motives are the most common (36.6 %), followed by financing (32.9 %) and refocusing (24.4%). It thus seems that European companies do not conduct equity carve-outs to take advantage of overvalued subsidiary equity, but in order to achieve divestiture gains.

I extend the analysis of equity carve-out motives by studying the financial characteristics of firms initiating carve-outs. I calculate several measures of leverage and operating performance for my sample parent companies, and find that they are more leveraged than industry peers before the carve-out. Parent companies have statistically significant higher median debt/total assets and debt/common equity ratios than their industry rivals. However, parent companies' operating performance does not differ significantly from industry peers. It thus seems that despite higher leverage, equity carve-out parent companies are able to maintain operating performance levels similar to their rivals. This evidence suggests that firms may conduct equity carve-outs to improve their balance sheet.

I measure the operating performance of both the parent and subsidiary firms after the carve-out in order to see whether equity carve-outs produce more competitive parent and subsidiary, as implied by the divestiture gains hypothesis. If carve-outs are mainly financing instruments as stated by the asymmetric information hypothesis, then they should not affect the operating performance of the companies involved. Both the scale and efficiency of operations are

analysed, and the results are mixed. Parent companies have lower median sales, income, total assets and capital expenditure growth rates than industry peers following the carve-out, and their operating performance is also worse than rivals'. On the other hand, subsidiary companies have higher median sales, income and total asset growth rates than industry peers, and their median operating performance measures are also better. This evidence suggests that equity carve-outs do produce more competitive subsidiary firms, but parent companies' operating performance does not seem to improve. It should be noted however that most of the numbers lack statistical significance.

I also conduct a regression analysis to further test the effect of certain parent and subsidiary company features and carve-out motives on the magnitude of the observed abnormal returns. Although the results lack statistical significance, some remarks can be made. Based on the regression coefficients, cross-industry carve-outs have a positive impact on the excess returns. This supports the refocusing sub-hypothesis of the divestiture gains hypothesis. Financing and investing motives have a negative effect on the abnormal returns, and it thus seems that the market does not appreciate the use of equity carve-outs as a means of repaying debt or funding investments over other motives. Other coefficients are insignificant in size.

Table 18 on the next page presents a summary of my research hypotheses and evidence supporting them. The hypotheses are presented in more detail in section 3.

**Table 18**

This table presents a summary of the research hypotheses and evidence found to support them.

| Hypothesis | Evidence supporting the hypothesis? |
|---|---|
| *H1: Asymmetric information*<br>Carve-outs are used as financing instruments to sell overvalued subsidiary equity | No; the magnitude of gamma (non-subsidiary assets/subsidiary assets) does not affect the magnitude of excess returns. Asymmetric information as a reason for carve-out mentioned only for 12 % of sample companies. |
| *H2: Refocusing*<br>Carve-outs are conducted to achieve greater focus | Yes; cross-industry carve-outs affect the magnitude of excess returns positively. Refocusing as a reason for carve-out mentioned for 24 % of sample companies. |
| *H3: Financing*<br>Carve-outs are used to raise equity capital for debt repayment or other financial obligations | Yes; financing as a reason for carve-outs mentioned for 33 % of sample companies. Parent companies have high leverage ratios before the carve-out. |
| *H4: Investing*<br>Carve-outs are used to raise equity capital for investments | Yes; investing is the most commonly stated motive for carve-outs (37 %) |
| *H5: Complexity, undervaluation and pure play*<br>Carve-outs are conducted to achieve better stand-alone value for the subsidiary | Little; better stand-alone value for subsidiary mentioned only for 17 % of sample companies, but cross-industry carve-outs affect the magnitude of excess returns positively. |
| *H6: Managerial incentives*<br>Carve-outs are used to motivate subsidiary mangers through better stock-based compensation | No; mentioned only for 3 % of sample companies. |
| *H7: Leverage*<br>Parent companies that conduct carve-outs are more leveraged than industry rivals | Yes; parent companies have higher leverage ratios than industry peers before the carve-outs (statistically significant differences in mean ratios). |
| *H8: Operating performance*<br>Parent companies that conduct carve-outs exhibit poor operating performance compared to industry rivals | No; no difference in the operating performance of pre-carve-out parents and industry rivals. |
| *H9: Scale of operations*<br>Carve-outs result in higher accounting variable growth rates for parents and subsidiaries than industry rivals | No for parent firms, yes for subsidiary firms. Parent companies underperform and subsidiaries outperform industry rivals after the carve-out (however, no statistical significance) |
| *H10: Efficiency of operations*<br>Carve-outs result in more efficient operation for parents and subsidiaries than industry rivals | No for parent firms, yes for subsidiary firms. Parent companies underperform and subsidiaries outperform industry rivals after the carve-out (however, no statistical significance) |

Based on this analysis, European companies conduct equity carve-outs mainly to achieve greater focus and to raise equity capital for debt repayment and investments. Consequently, the answer to the question if European equity carve-outs are good or evil is that they are good. Companies do not seem to be selling overvalued subsidiary equity to investors, as manifested by the good operating performance of the carved-out subsidiaries after the event. Still, parent companies exhibit poor operating performance after the carve-out. Therefore it seems that

European carve-outs produce only more competitive subsidiary companies, not parents. An interesting future research topic could be an analysis of the operating performance of the subsidiaries in the long-term, to see if they are able to outperform their rivals on a longer time horizon. It might also be of interest to study the occurrence of second events, that is spin-offs or re-acquisitions of subsidiary, in Europe. Studying the stock market reaction of parent companies' rivals within the announcement of carve-outs might also provide more evidence on the sources of the observed wealth gains.

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**APPENDIX:** Companies announcing equity carve-outs and announcement dates

| Company | Announcement date |
|---|---|
| Adia SA | 1.8.1995 |
| Agbar | 19.7.2005 |
| Albert Fisher | 20.9.1993 |
| Alcatel SA | 4.8.2000 |
| Bayer AG | 11.12.1998 |
| BM Group | 31.8.1993 |
| Brancote Holdings PLC | 4.1.2001 |
| Bure Equity AB | 22.11.2000 |
| Canal Plus SA | 19.2.2000 |
| Cannon Street Investments PLC | 24.2.1992 |
| Casino Guichard-P | 10.6.1991 |
| Cattle's PLC | 10.2.1992 |
| Commerzbank AG | 9.6.1999 |
| Credit Suisse Group | 5.5.2004 |
| Cremonini SpA | 18.2.2005 |
| Deutsche Bank | 1.10.2000 |
| Deutsche Post AG | 6.5.2004 |
| Deutsche Telekom | 25.1.2000 |
| Distefora Holding | 26.1.2000 |
| Dixons Group | 7.7.1999 |
| Electrolux AB | 2.3.1994 |
| Elektrowatt AG | 12.6.1996 |
| ENEL SpA | 11.9.2003 |
| ENI SpA | 14.11.2001 |
| Escada AG | 18.1.1993 |
| Fiat SpA | 26.6.1996 |
| Finvest Oy | 18.7.1997 |
| Forte PLC | 14.10.1993 |
| France Telecom SA | 2.3.2000 |
| France Telecom SA | 8.1.2001 |
| France Telecom SA | 22.6.2004 |
| Gas Natural SDG SA | 6.5.2002 |
| GUS PLC | 14.9.2004 |
| Hanson PLC | 2.12.1993 |
| Hanson PLC | 20.12.1995 |
| Helsinki Telephone Plc | 20.11.1999 |
| HgCapital Trust PLC | 29.11.2004 |
| Hoechst AG | 9.11.1994 |
| Jenoptik AG | 28.5.1999 |
| Kemira Oyj | 25.5.2004 |
| Lasmo PLC | 1.5.1992 |
| Liberty International | 11.3.1994 |
| Metallgesellschaft AG | 8.2.1999 |

| Company | Announcement date |
|---|---|
| Metro AG | 21.4.1998 |
| Metro AG | 5.11.1998 |
| Midway Holding AB | 27.8.1993 |
| MobilCom AG | 6.11.1999 |
| Nestle SA | 22.2.2002 |
| Novo Nordisk A/S | 17.10.2000 |
| NV Koninklijke KNP BT | 11.5.1995 |
| OTE - Hellenic Telecommunications Organisation | 7.8.2000 |
| Outokumpu Oyj | 5.4.1993 |
| Pearson PLC | 27.7.1993 |
| Peninsular & Oriental Steam | 26.3.1996 |
| Pirelli & Co SpA | 14.3.2002 |
| Pittencrieff PLC | 5.5.1993 |
| Prudential PLC | 10.5.2000 |
| Rallye SA | 15.3.1999 |
| Rhone-Poulenc SA | 10.10.1997 |
| Roche Holdings AG | 14.6.1999 |
| Royal & Sun Alliance Ins Grp | 13.3.2003 |
| Sandoz AG | 7.6.1995 |
| SAP AG | 4.8.2000 |
| Siemens AG | 22.3.1999 |
| Siemens AG | 22.7.1999 |
| Sol Melia | 6.3.1998 |
| Spectra-Physics AB | 21.10.1997 |
| Stolt Tankers & Terminals SA | 15.3.1993 |
| Svedala Industri AB | 22.4.1994 |
| Tabacalera | 3.9.1998 |
| Tarmac PLC | 1.11.1993 |
| Telecom Italia SpA | 7.5.1998 |
| Telefonica SA | 8.5.1999 |
| Telefonica SA | 25.8.1999 |
| Telefonica SA | 10.9.2005 |
| Tractebel SA | 13.2.1996 |
| Trelleborg AB | 21.2.1994 |
| Trelleborg AB | 12.2.1997 |
| Trygg-Hansa | 25.9.1993 |
| TurnIT AB | 22.2.2000 |
| UAP | 30.4.1996 |
| Ugine SA | 28.9.1993 |
| United Internet AG | 25.4.2000 |
| Wassall PLC | 10.3.1997 |
| Veba Kraftwerke Ruhr AG | 18.5.1995 |
| Veba Kraftwerke Ruhr AG | 26.9.1999 |
| Willis Corroon Group PLC | 24.9.1993 |
| Vivendi SA | 25.2.2000 |
| Zurich Financial Services AG | 7.10.1999 |
| Zurich Financial Services AG | 6.9.2001 |

| Company | Announcement date |
|---|---|
| Zurich Insurance Co. | 10.3.1993 |
| 3i Group PLC | 1.6.1998 |
| 3i Group PLC | 18.2.2002 |
| 3i Group PLC | 16.6.2004 |